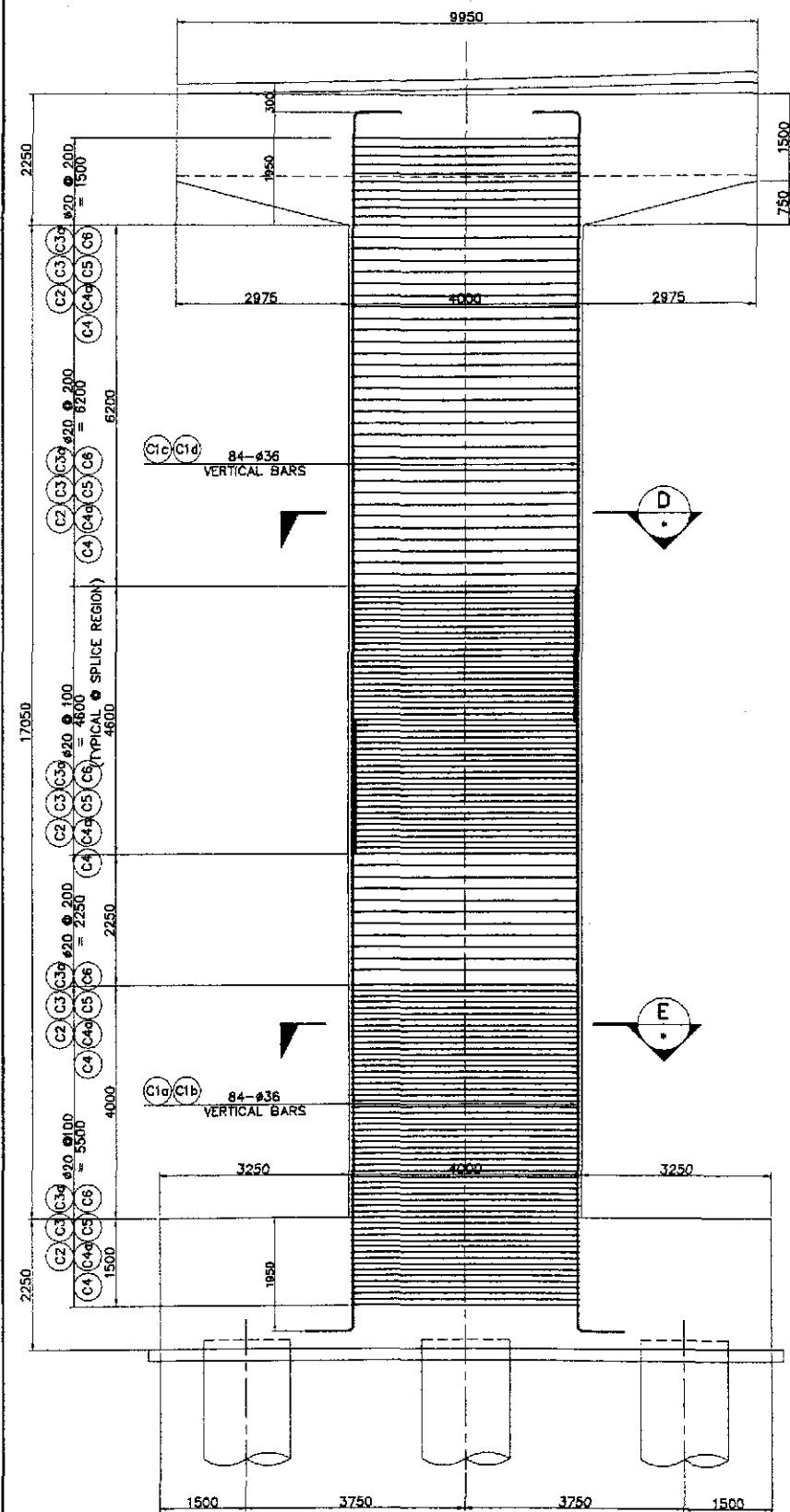
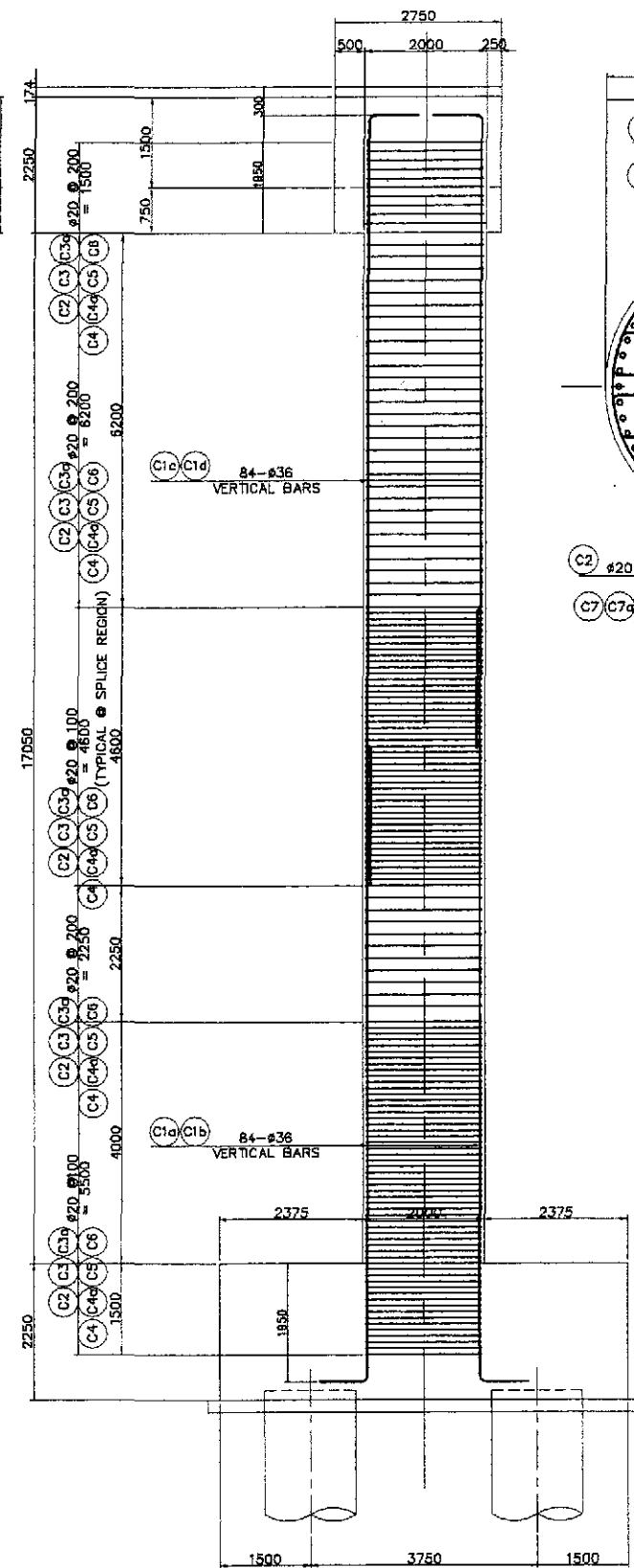


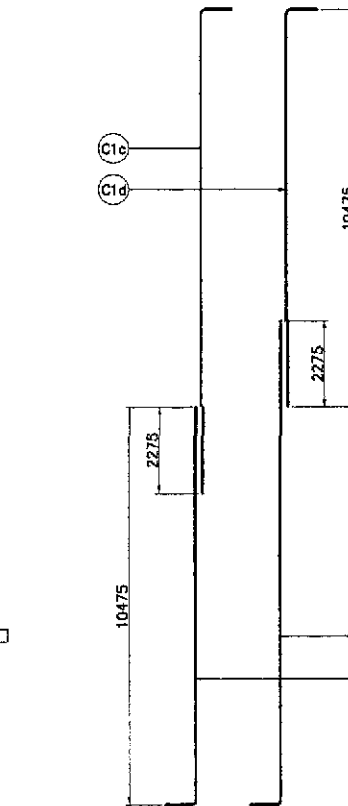
SUBSTRUCTURE REINFORCING BARS



A FRONT ELEVATION
SCALE 1:60

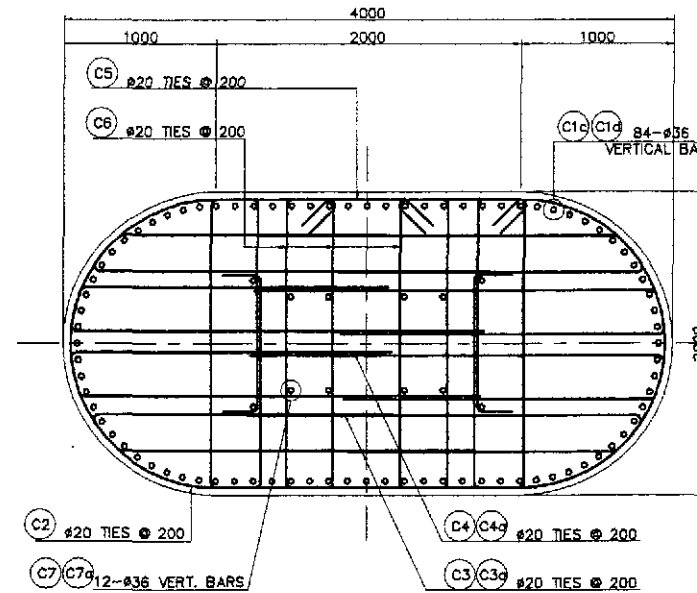


B SIDE ELEVATION
SCALE 1:60

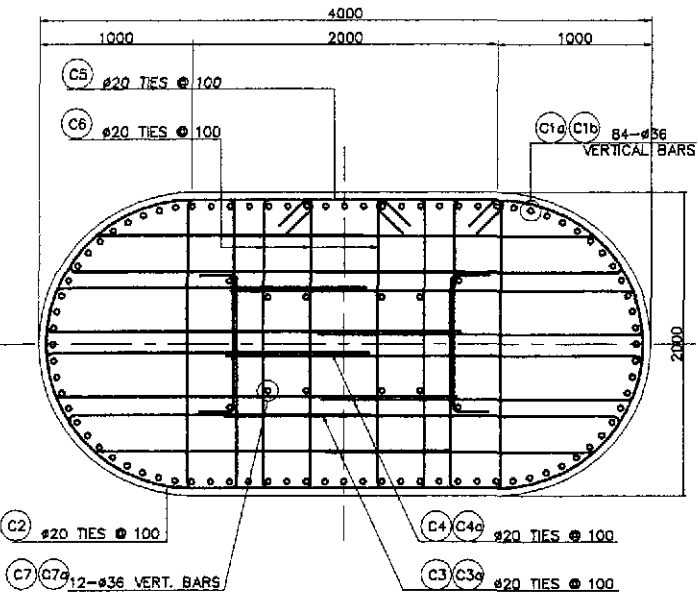


C DETAIL
NOT TO SCALE

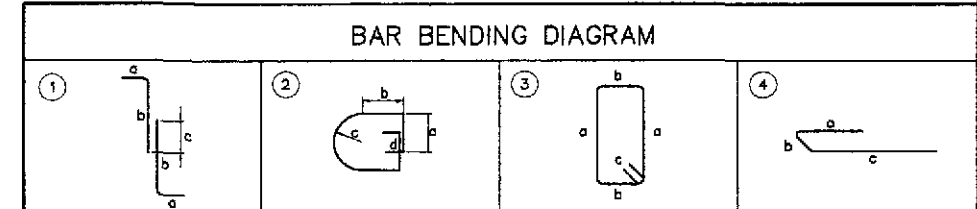
1 COLUMN REINFORCEMENT DETAIL (PIER 14 & PIER 21)
SCALE AS SHOWN



D SECTION
SCALE 1:25



E SECTION
SCALE 1:25

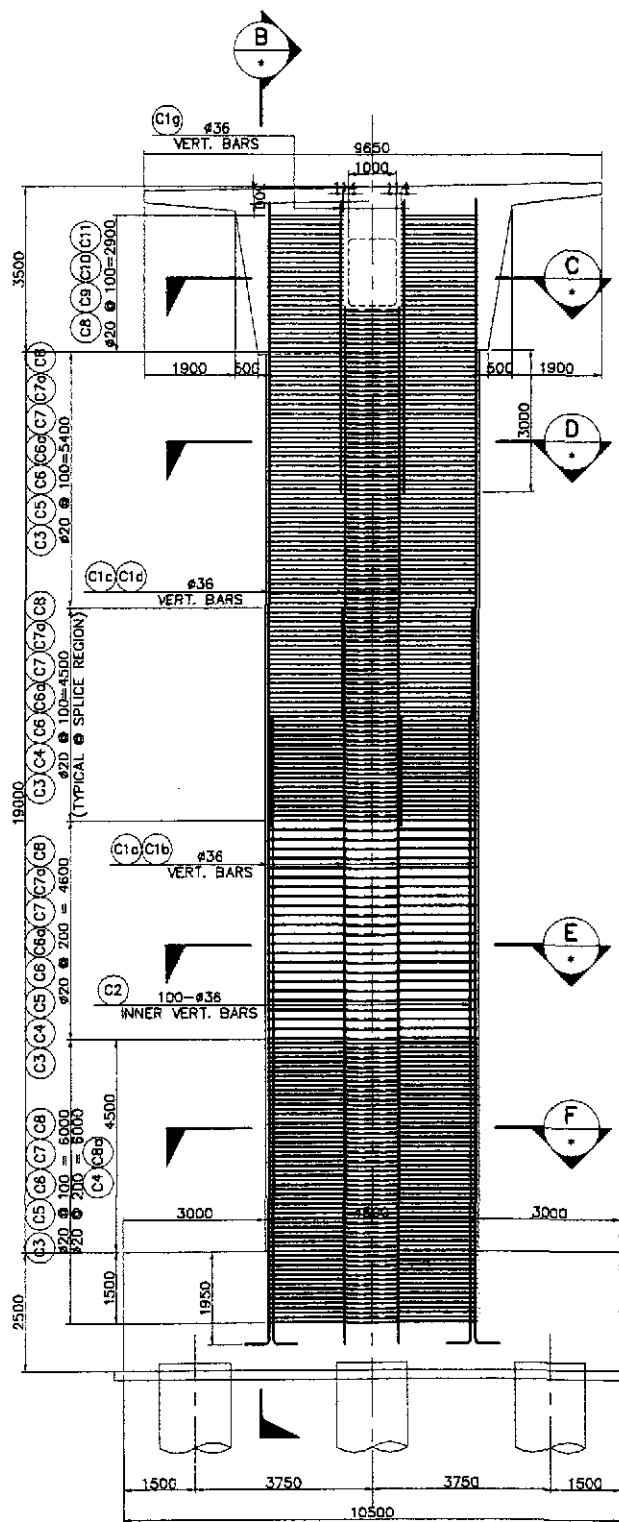


SCHEDULE OF REINFORCEMENT

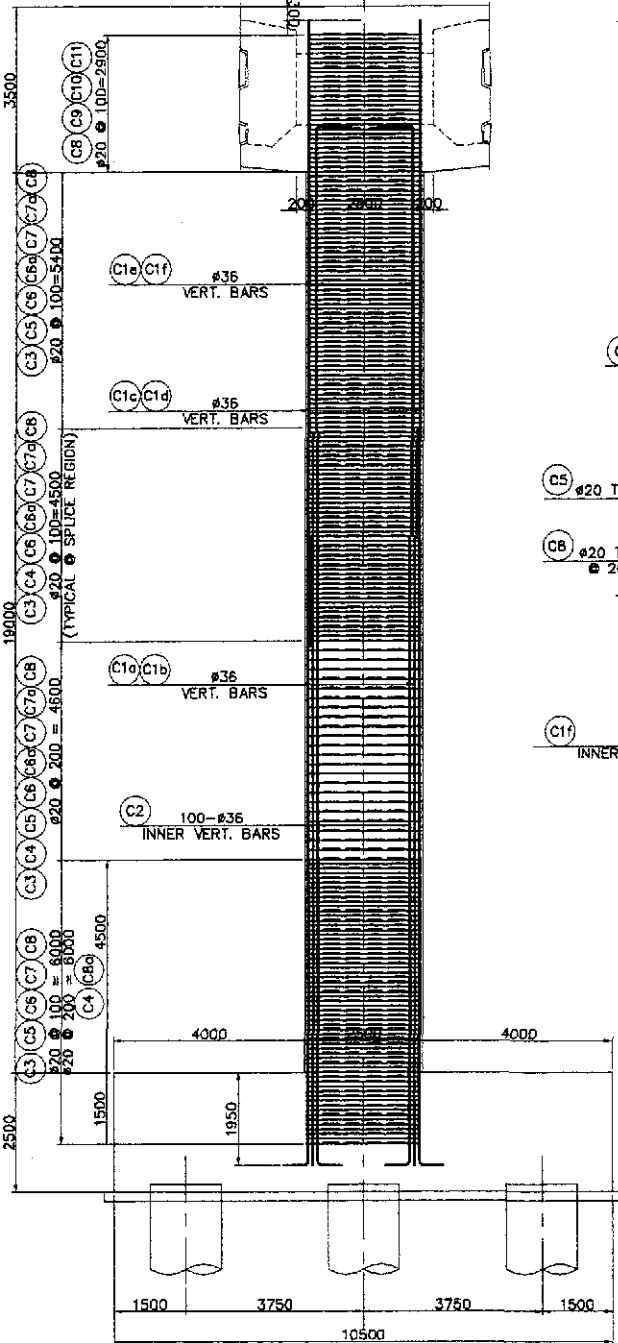
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (Kg.) GRADE 60
				a	b	c	d	e	f				
PIER 14	C1a	36	1	500	13250	2275				13750	42	7.991	4614.80
	C1b	36	1	500	10475	2275				10975	42	7.991	3683.45
	C1c	36	1	500	13250	2275				13750	42	7.991	4614.80
	C1d	36	1	500	10475	2275				10975	42	7.991	3683.45
	C2	20	2	1375	335	925	250			6826	318	2.466	5352.85
	C3	20	4	1940	240	2330				4510	318	2.466	3536.69
	C3a	20	4	2540	240	1730				4510	318	2.466	3536.69
	C4	20	4	2075	295	2500				4970	318	2.466	3897.41
	C4a	20	4	2675	295	2000				4970	318	2.466	3897.41
	C5	20	3	1850	1955	250				8110	159	2.466	3179.88
	C6	20	3	1850	315	250				4830	318	2.466	3787.63
	C7	36	1	500	10475	2275				10975	12	7.991	1052.41
	C7a	36	1	500	13250	2275				13750	12	7.991	1318.52
	TOTAL WEIGHT											= 46,156.00 Kgs.	
PIER 21	C1a	36	1	500	13250	2275				13750	42	7.991	4614.80
	C1b	36	1	500	10475	2275				10975	42	7.991	3683.45
	C1c	36	1	500	13250	2275				13750	42	7.991	4614.80
	C1d	36	1	500	10475	2275				10975	42	7.991	3683.45
	C2	20	2	1375	335	925	250			6826	318	2.466	5352.85
	C3	20	4	1940	240	2330				4510	318	2.466	3536.69
	C3a	20	4	2540	240	1730				4510	318	2.466	3536.69
	C4	20	4	2075	295	2500				4970	318	2.466	3897.41
	C4a	20	4	2675	295	2000				4970	318	2.466	3897.41
	C5	20	3	1850	1955	250				8110	159	2.466	3179.88
	C6	20	3	1850	315	250				4830	318	2.466	3787.63
	C7	36	1	500	10475	2275				10975	12	7.991	1052.41
	C7a	36	1	500	13250	2275				13750	12	7.991	1318.52
	TOTAL WEIGHT											= 46,156.00 Kgs.	

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

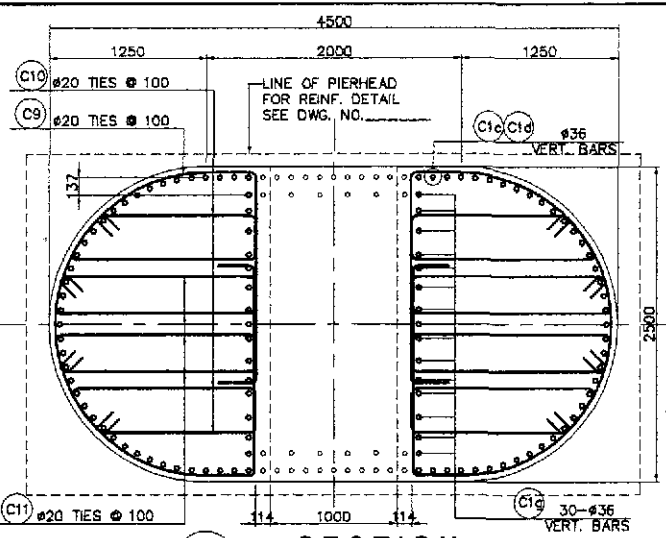
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/27/02	[Signature]	BUREAU OF DESIGN OFFICE OF THE SECRETARY			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE COLUMN REINFORCEMENT DETAIL (PIER 14 & PIER 21) (ULTIMATE STAGE)	B8M-51
	SUBMITTED	9/30/02	[Signature]	Submitted By:	Reviewed By:	Recommended By:	PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1		



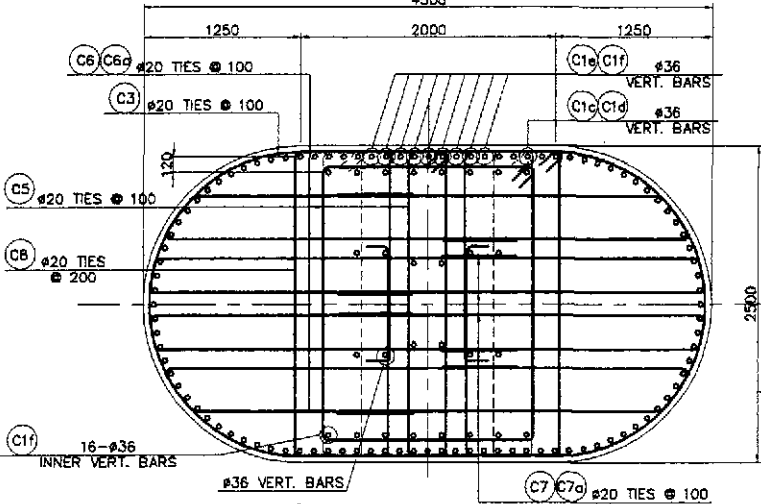
A ELEVATION
SCALE 1:80



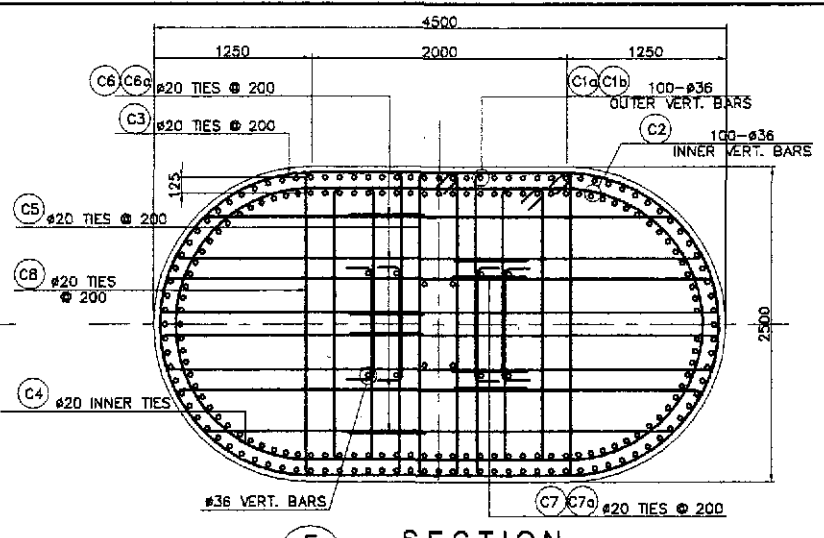
C SECTION
SCALE 1:80



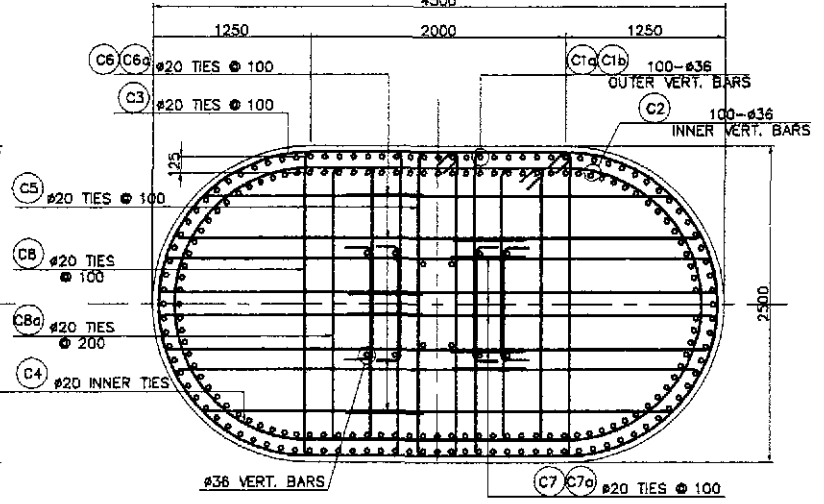
C SECTION
SCALE 1:30



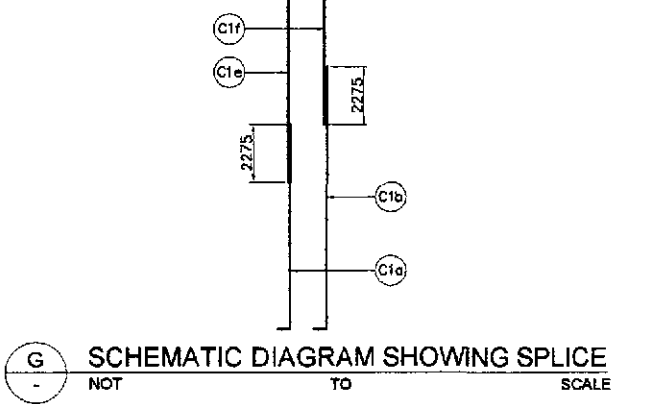
D SECTION
SCALE 1:30



E SECTION
SCALE 1:30

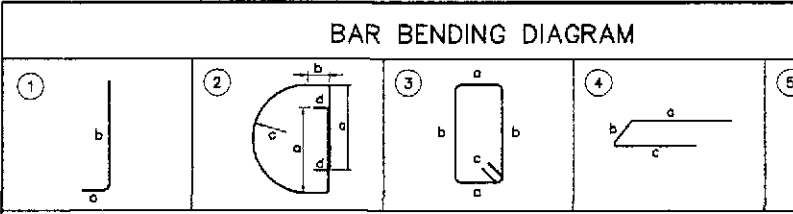


F SECTION
SCALE 1:30



G SCHEMATIC DIAGRAM SHOWING SPLICE
NOT TO SCALE

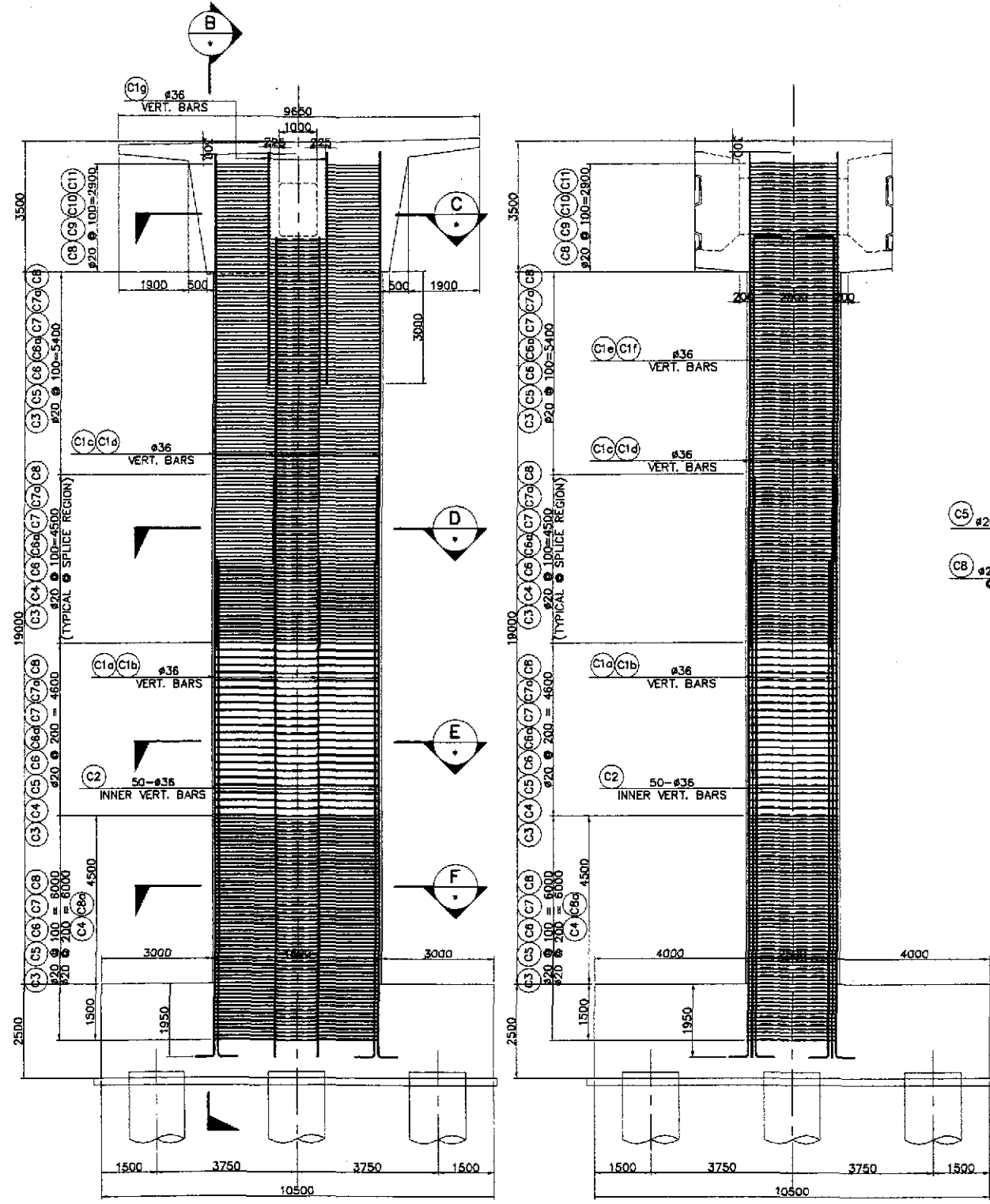
SCHEDULE OF DIMENSIONS COLUMN (TYPE-1)	
PIER	H (mm)
PIER 15	19000
PIER 20	19000



SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQD.	UNIT WEIGHT (kg/m)	WEIGHT (Kg) GRADE 80	
				a	b	c	d	e	f					
PIER 15 & PIER 20	C1a	36	1	500	13225	2275					13725	50	7.991	5483.82
	C1b	36	1	500	15500	2275					16000	50	7.991	6392.80
	C1c	36	STR		12875						12875	50	7.991	5144.21
	C1d	36	STR		10925						10925	50	7.991	4365.08
	C1e	36	1	500	10900						11400	9	7.991	819.88
	C1f	36	1	500	8625						9125	25	7.991	1822.95
	C1g	36	STR		6000						6000	30	7.991	1438.38
	C2	36	1	500	15500						16000	100	7.991	12985.60
	C3	20	2	1625	710	1175	250				8861	368	2.466	8041.25
	C4	20	2	1500	510	1050	250				7819	138	2.466	2660.75
	C5	20	3	300	2350	250					5800	191	2.466	2731.83
	C6	20	4	2815	345	1975					5135	382	2.466	4837.23
	C6a	20	4	2220	345	2575					5140	382	2.466	4841.94
	C7	20	4	2925	300	2270					5495	382	2.466	5176.36
	C7a	20	4	2325	300	2870					5495	382	2.466	4413.33
	C8	20	3	2085	2350	250					8370	191	2.466	4320.90
C8a	20	3	1620	2100	250					7940	69	2.466	1351.02	
C9	20	2	1625	275	1175	250				7991	38	2.466	748.86	
C10	20	5	1090	345	1335	425	250			3895	76	2.466	692.50	
C11	20	5	1390	415	1445	425	250			3935	76	2.466	737.48	
											TOTAL WEIGHT FOR (1)PIER	=	79,861.60 Kgs.	
											TOTAL WEIGHT FOR (2)PIERS	=	159,723.20 Kgs.	

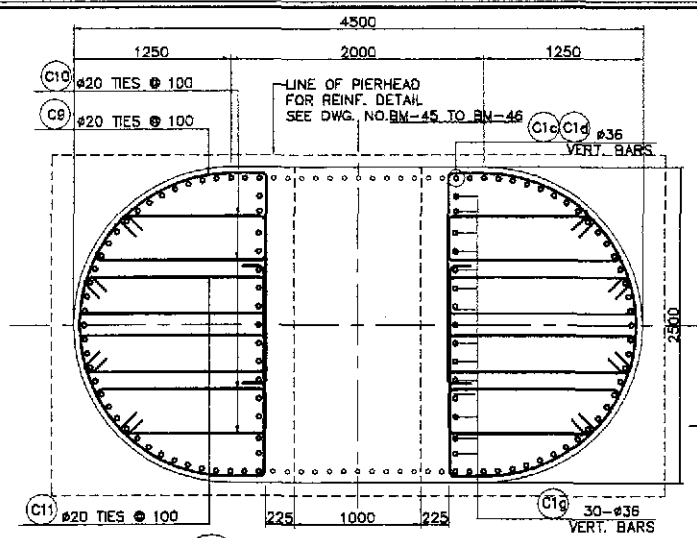
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE III	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 8 ANGAT RIVER BRIDGE COLUMN REINFORCEMENT DETAILS (PIER 15 & PIER 20) (ULTIMATE STAGE)	SHEET NO. : B8M-52
	CHECKED	9/27/16	[Signature]		BUREAU OF DESIGN							
	SUBMITTED	9/28/16	[Signature]		Submitted By: DANILLO C. TRAJANO, Project Director	Reviewed By: ADRIANO M. DORAY, Chief, Bridges Division	Recommended By: GILBERTO S. REYES, Director IV (CIC)	Recommended By: MANUEL M. BONOAN, Underscretary				

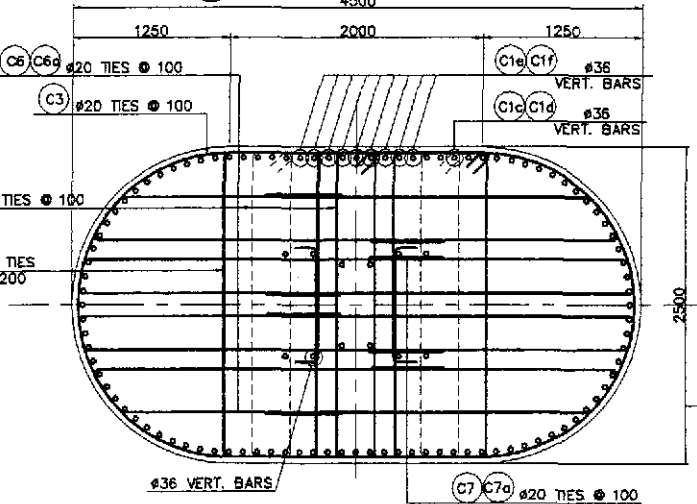


A ELEVATION
SCALE 1:80

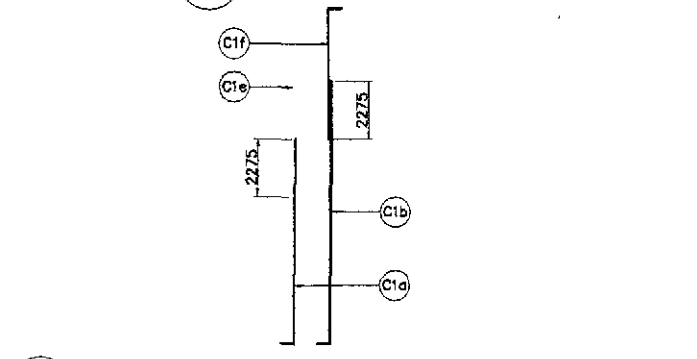
C SECTION
SCALE 1:80



C SECTION
SCALE 1:30



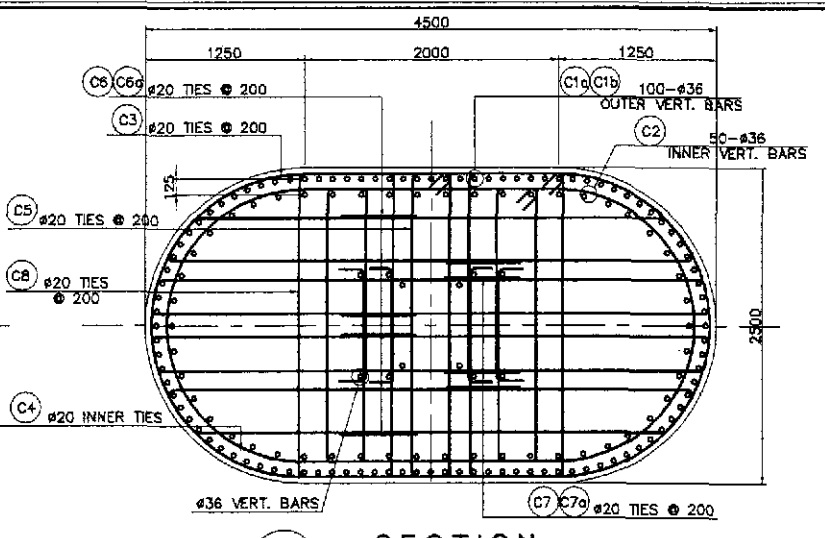
D SECTION
SCALE 1:30



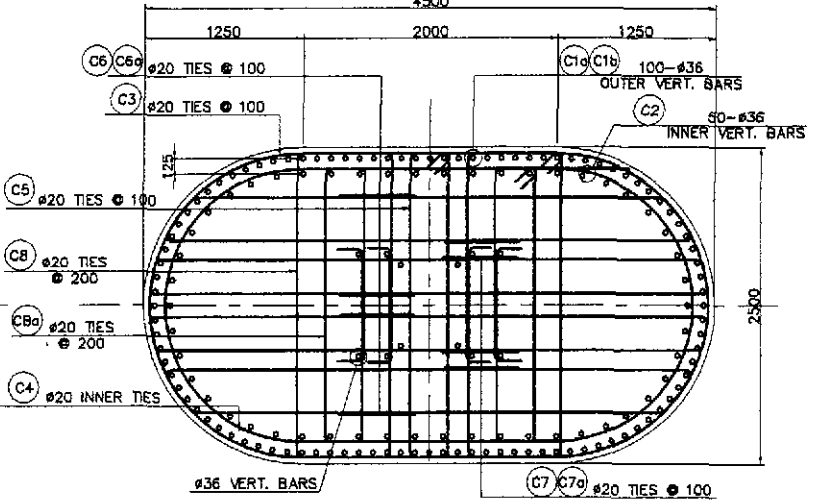
G SCHEMATIC DIAGRAM SHOWING SPLICE
NOT TO SCALE

SCHEDULE OF DIMENSIONS COLUMN (TYPE-2)

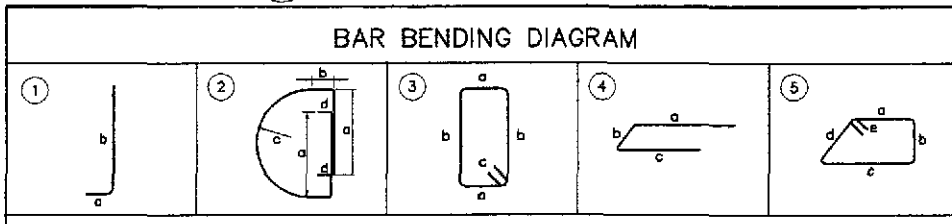
PIER	H (mm)
PIER 16	19000
PIER 17	19000
PIER 18	19000
PIER 19	19000



E SECTION
SCALE 1:30



F SECTION
SCALE 1:30

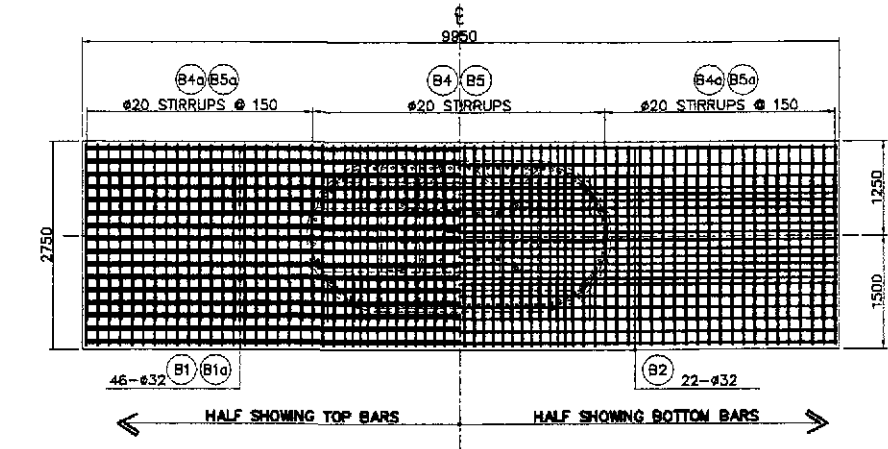


SCHEDULE OF REINFORCEMENT

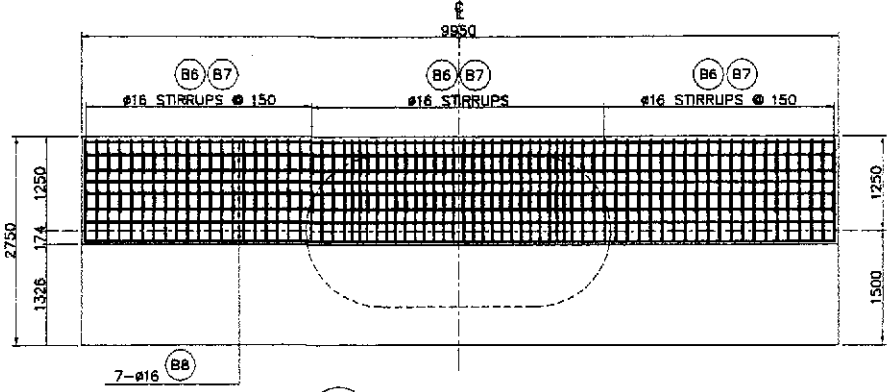
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER 16, PIER 17, PIER 18 & PIER 19	C1a	36	1	500	13225	2275				13725	50	7.991	5483.82
	C1b	36	1	500	15500	2275				16000	50	7.991	6392.80
	C1c	36	STR	12875						12875	50	7.991	5144.21
	C1d	36	STR	10925						10925	50	7.991	4365.08
	C1e	36	1	500	10900					11400	9	7.991	819.86
	C1f	36	1	500	8625					9125	9	7.991	656.26
	C1g	36	STR	6000						6000	30	7.991	1438.38
	C2	36	1	500	15500					16000	50	7.991	6382.80
	C3	20	2	1625	710	1175	250			8861	368	2.466	8041.25
	C4	20	2	1500	510	1050	250			7819	138	2.466	2660.76
	C5	20	3	300	2350	250				5800	191	2.466	2731.83
C6	20	4	2815	345	1975				5135	382	2.466	4837.23	
C6a	20	4	2220	345	2575				5140	382	2.466	4841.94	
C7	20	4	2925	300	2270				5495	382	2.466	5176.36	
C7a	20	4	2325	300	2870				5495	382	2.466	5176.36	
C8	20	3	2085	2350	250				9370	191	2.466	4413.33	
C8a	20	3	1820	2100	250				7940	69	2.466	1351.02	
C9	20	2	1625	275	1175	250			7991	38	2.466	748.86	
C10	20	5	1090	345	1335	425	250		3695	76	2.466	692.50	
C11	20	5	1390	300	1445	425	250		3935	76	2.466	737.48	
											TOTAL WEIGHT FOR (1) PIER	= 72,082.15 Kgs.	
											TOTAL WEIGHT FOR (4) PIERS	= 288,368.60 Kgs.	

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

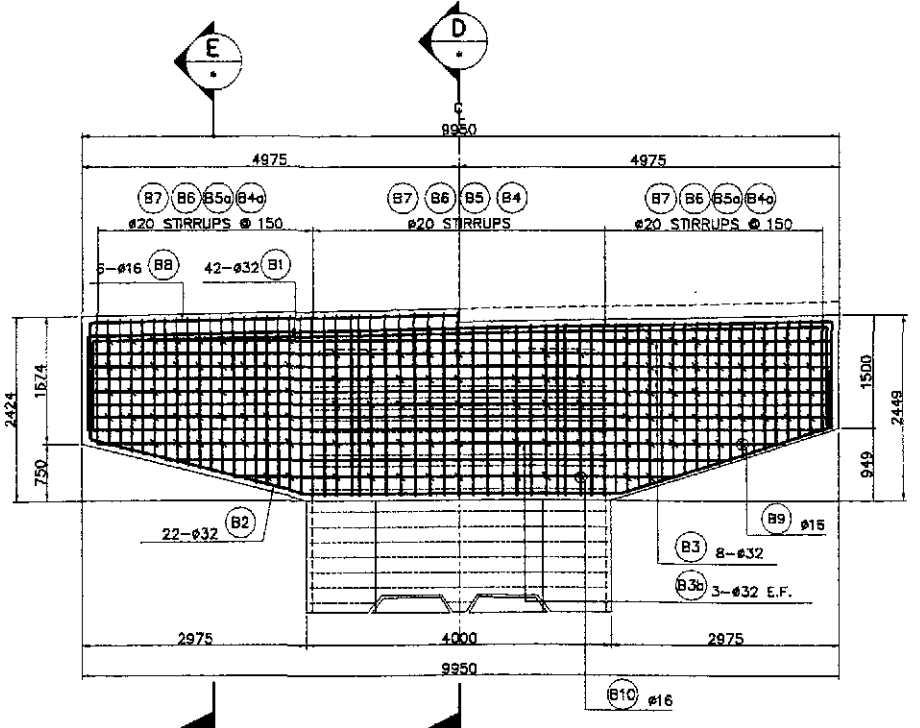
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :		SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/2/02	[Signature]		BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE COLUMN REINFORCEMENT DETAILS (PIER 16 TO PIER 19) (ULTIMATE STAGE)	B8M-53
SUBMITTED	9/2/02	[Signature]	Submitted By:	Reviewed By:	Recommended By:	Approved By:	PLARIDEL BYPASS - CONTRACT PACKAGE III		FULL SIZE A1				



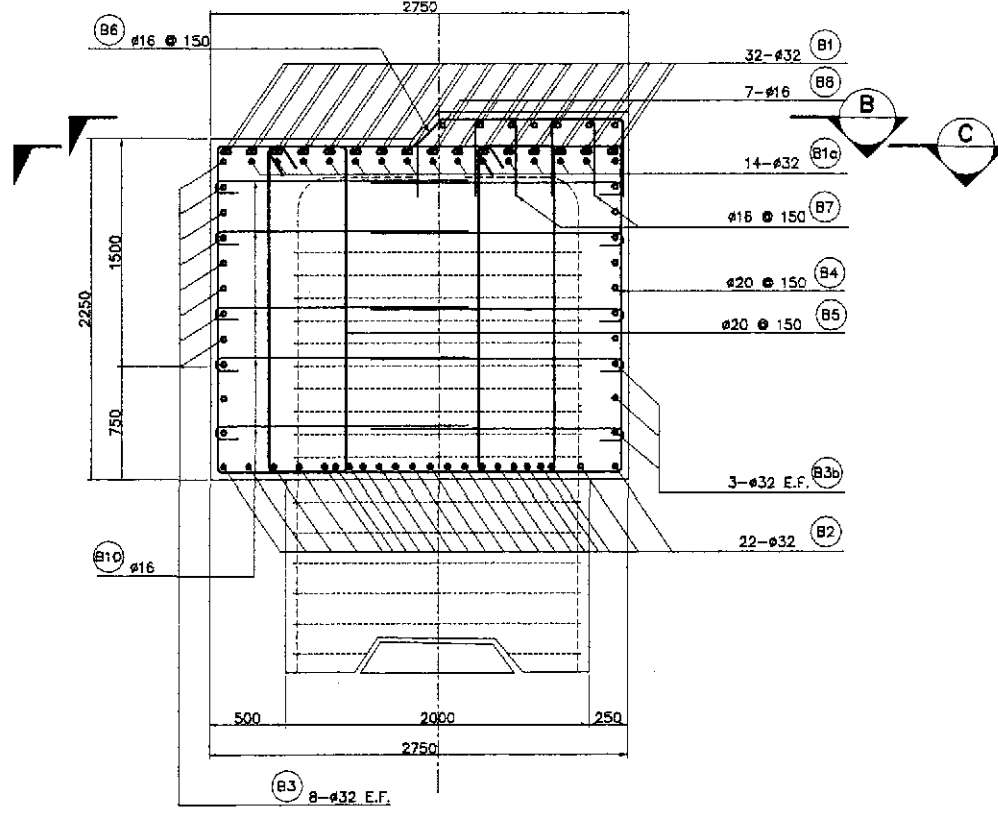
C PLAN
SCALE 1:50



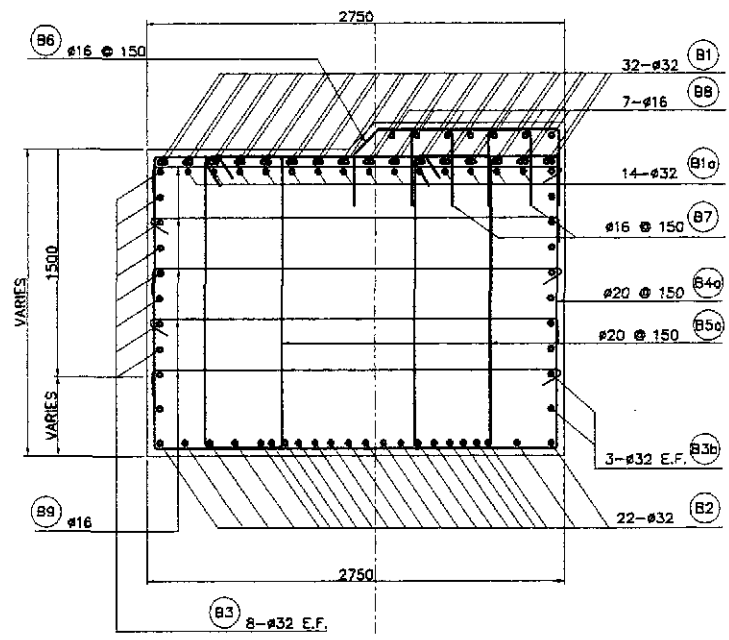
B PLAN
SCALE 1:50



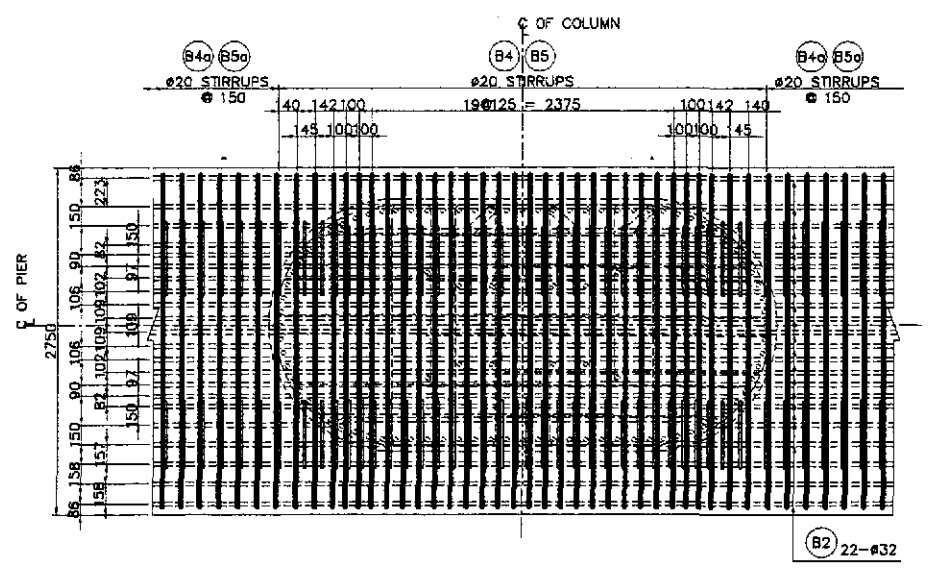
A ELEVATION
SCALE 1:50



D SECTION
SCALE 1:25

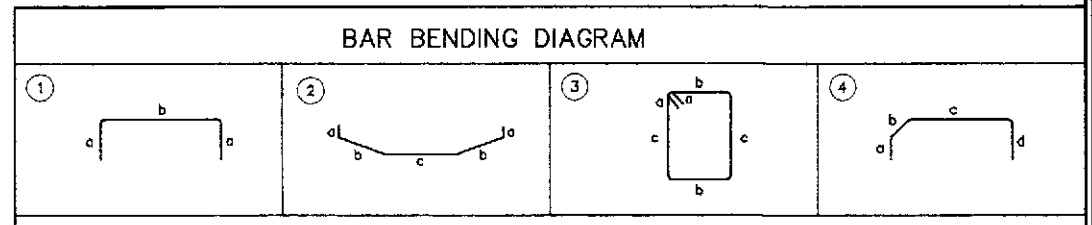


E SECTION
SCALE 1:25



F DETAIL
SCALE 1:30

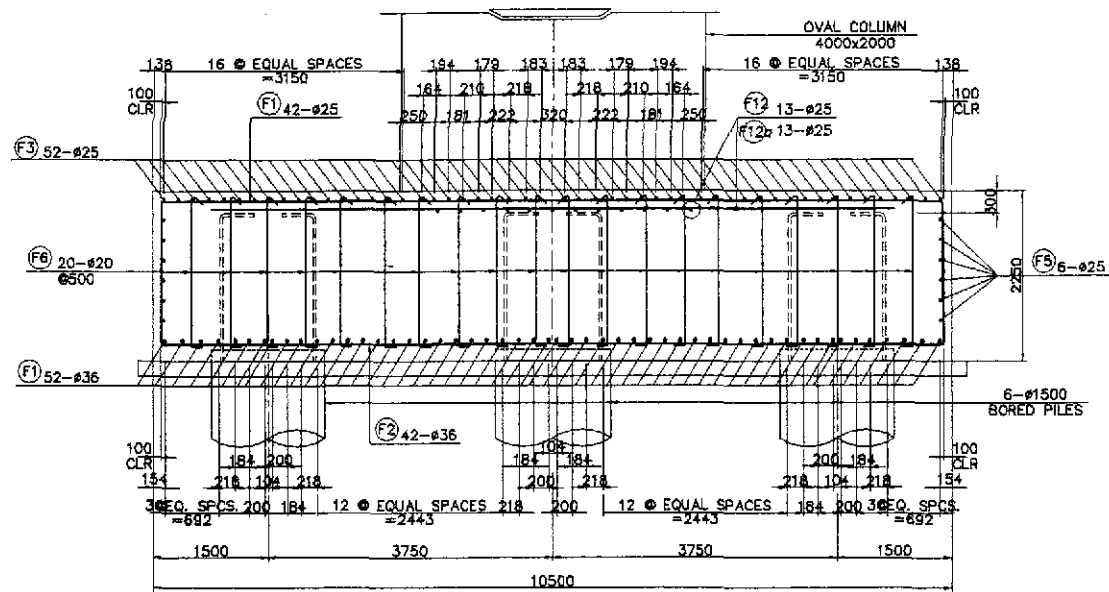
1 COPING REINFORCEMENT DETAILS (PIER 14 & PIER 21)
SCALE AS SHOWN



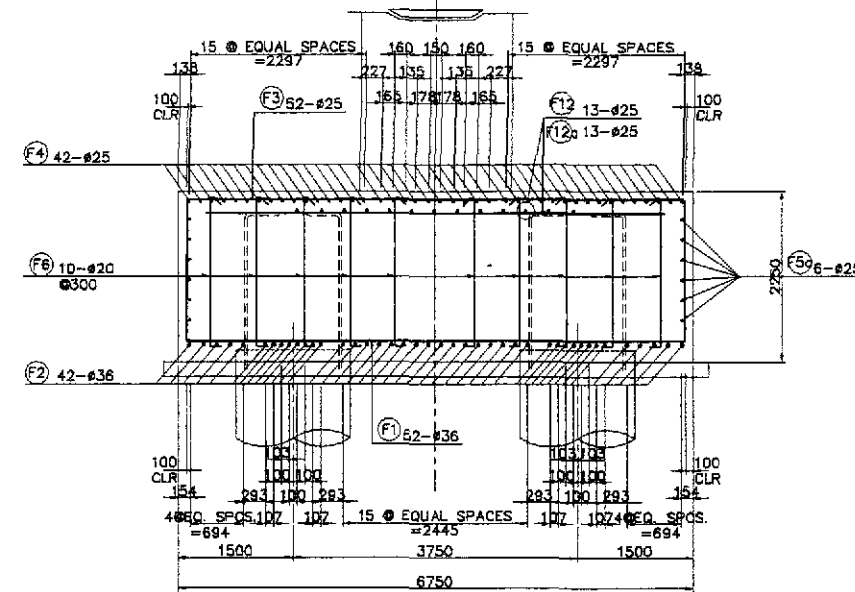
SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQD.	UNIT WEIGHT (kg/m)	WEIGHT GRADE 80 (kg.)	WEIGHT GRADE 40 (kg.)
				a	b	c	d	e	f					
(PIER 14 & PIER 21)	B1	32	1	9850	660					11170	32	6.313	2256.62	
	B1a	32	2	9680						9680	14	6.313	855.54	
	B2	32	2	660	3020	4000				11360	22	6.313	1577.74	
	B3	32	1	9850	1000					11850	16	6.313	1196.94	
	B3b	32	3	9850(max) 8000(min)	1000		1650			9925	6	6.313	375.94	
	B4	20	3	250	2400	2150				10100	23	2.466	572.85	
	B4c	20	3	250	2400	2100(max) 1400(min)				9300	38	2.466	871.48	
	B5	20	3	250	500	2150				5800	46	2.466	657.93	
	B5c	20	3	250	500	2100(max) 1400(min)				5000	76	2.466	937.08	
	B6	16	1	400	900					1700	61	1.578		163.74
	B7	16	1	400	180					9800	122	1.578		188.79
	B8	16	STR	9800						9800	6	1.578		92.85
TOTAL WEIGHT											=	9302.03 Kgs.		
TOTAL WEIGHT											=		460.85 Kgs.	
TOTAL WEIGHT FOR 2 PIERS											=	18604.06 Kgs.		
TOTAL WEIGHT FOR 2 PIERS											=		921.69 Kgs.	

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

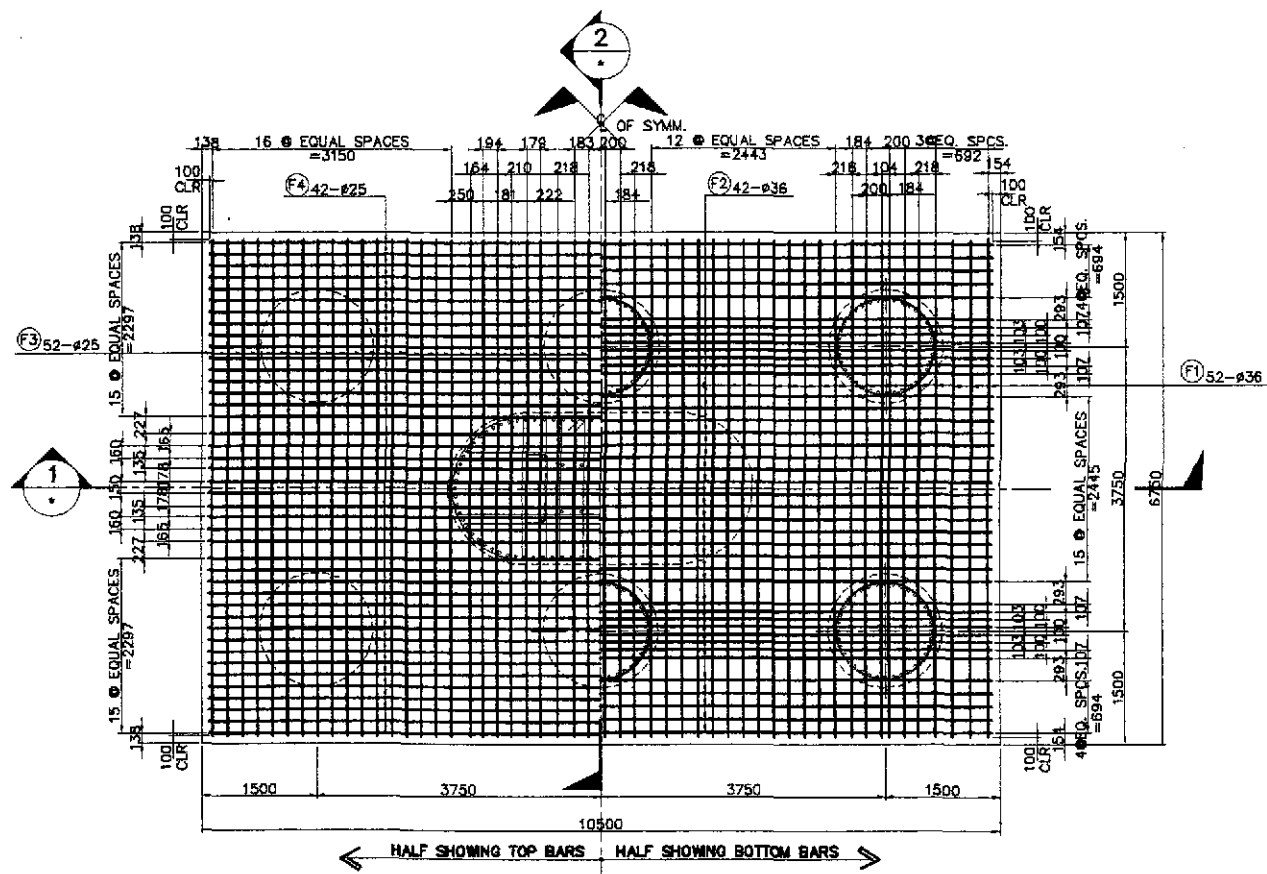
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/21/02	<i>[Signature]</i>	BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE COPING REINFORCEMENT DETAILS (PIER 14 & PIER 21) (ULTIMATE STAGE)	B8M-54
SUBMITTED	9/23/02	<i>[Signature]</i>	OFFICE OF THE SECRETARY			PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1			



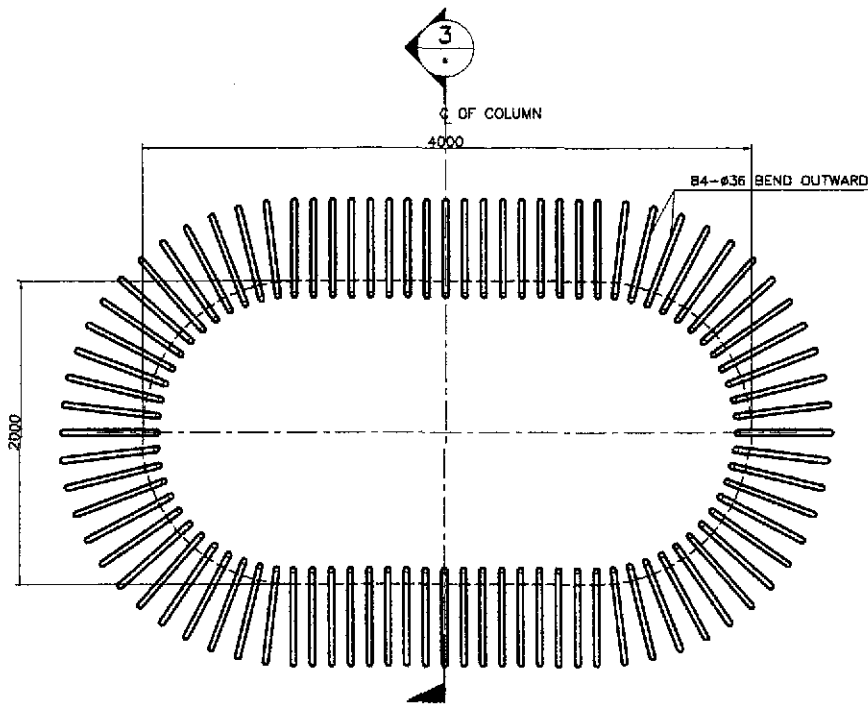
1 SECTION
SCALE 1:50



2 SECTION
SCALE 1:50



A PLAN
SCALE 1:50



DETAIL OF COLUMN
MAIN BAR ARRANGEMENT @ BOTTOM
SCALE 1:25

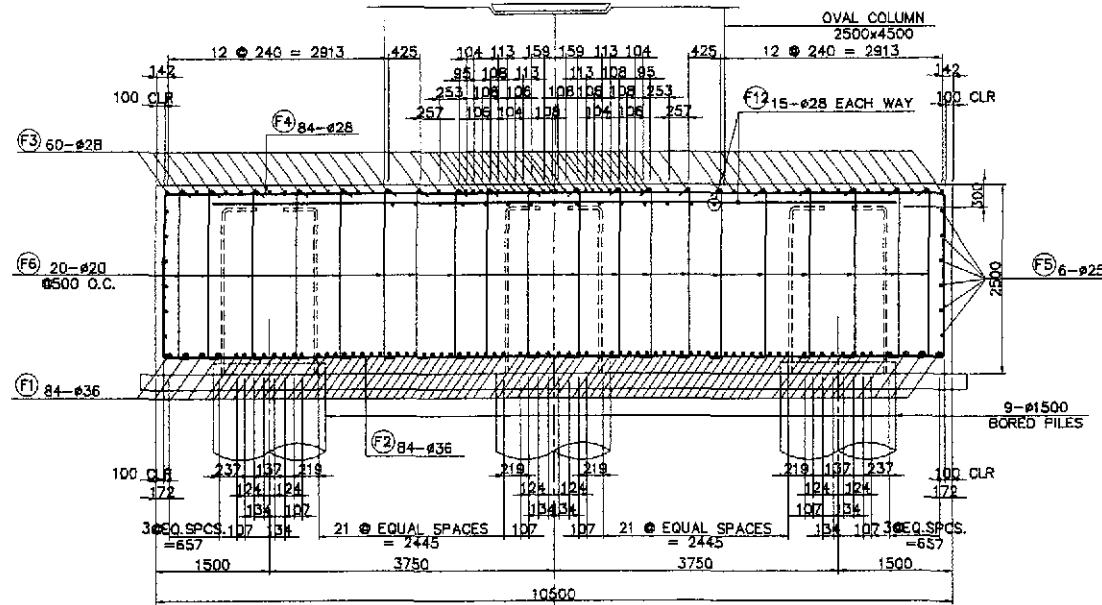
A PILE CAP REINFORCEMENT DETAILS (P14 & P21)
SCALE AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

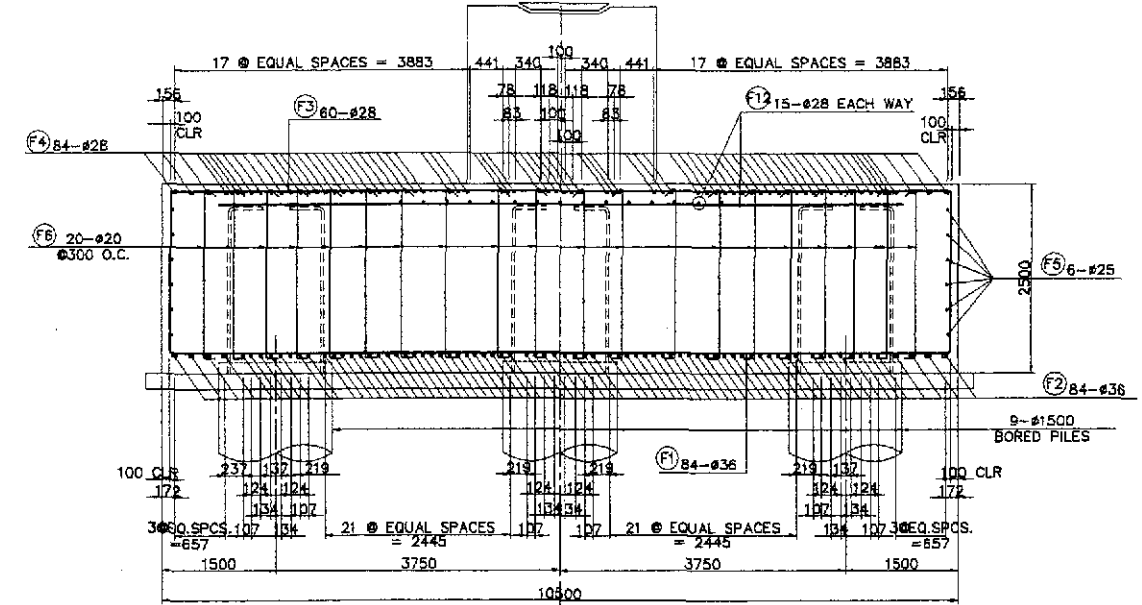
KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS		
CHECKED	9/25/02	[Signature]	BUREAU OF DESIGN		
SUBMITTED	9/30/02	[Signature]	OFFICE OF THE SECRETARY		
			Submitted By:	Reviewed By:	Recommended By:
			DANILO C. TRAJANO Project Director	ADRIANO M. DOROS Chief, Bridge Division	GILBERTO S. REYES Director IV (DC)
				MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary

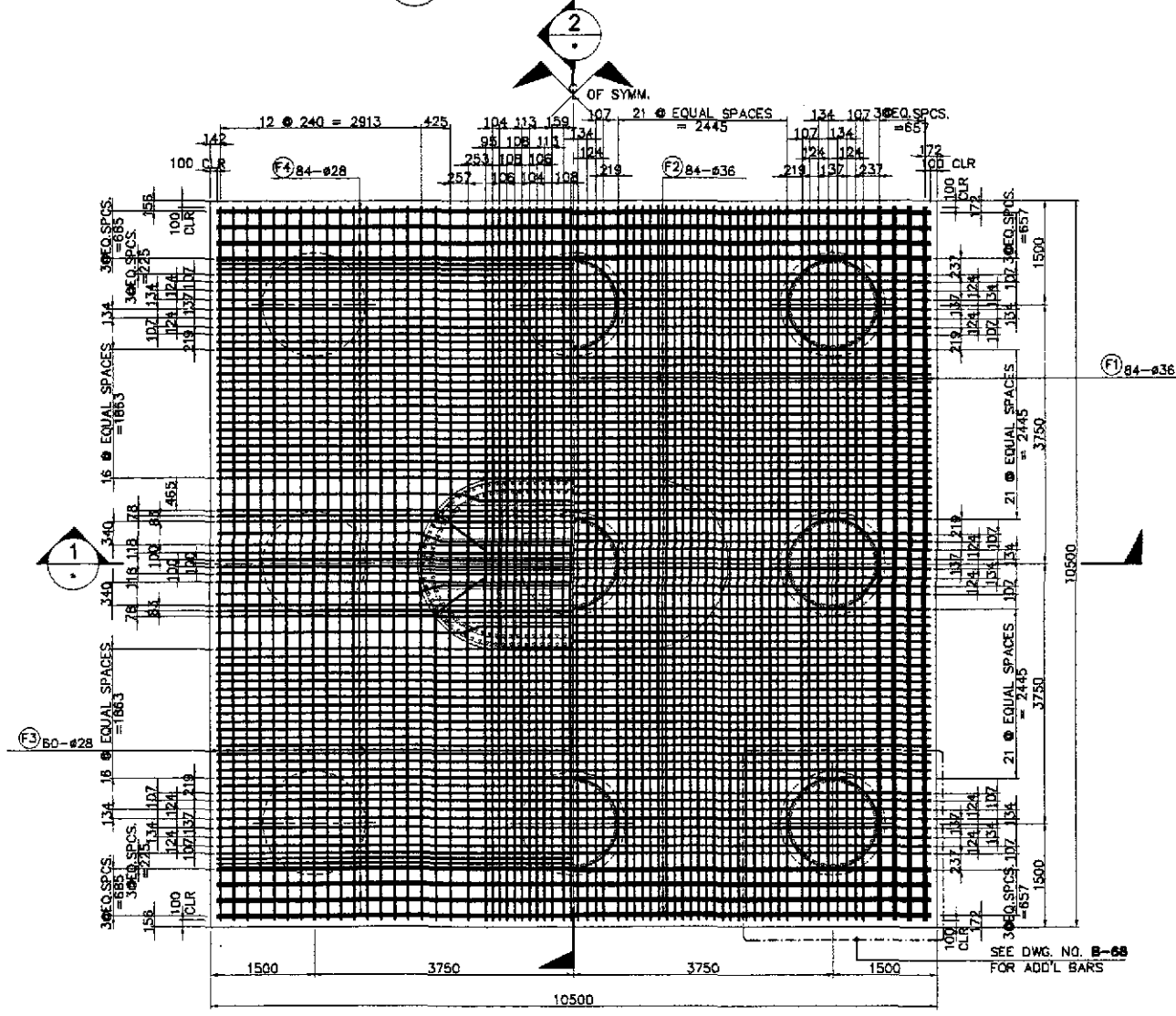
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE PILE CAP REINFORCEMENT DETAILS (P 14 & P21) - 1 OF 2 (ULTIMATE STAGE)	B8M-55
PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1		



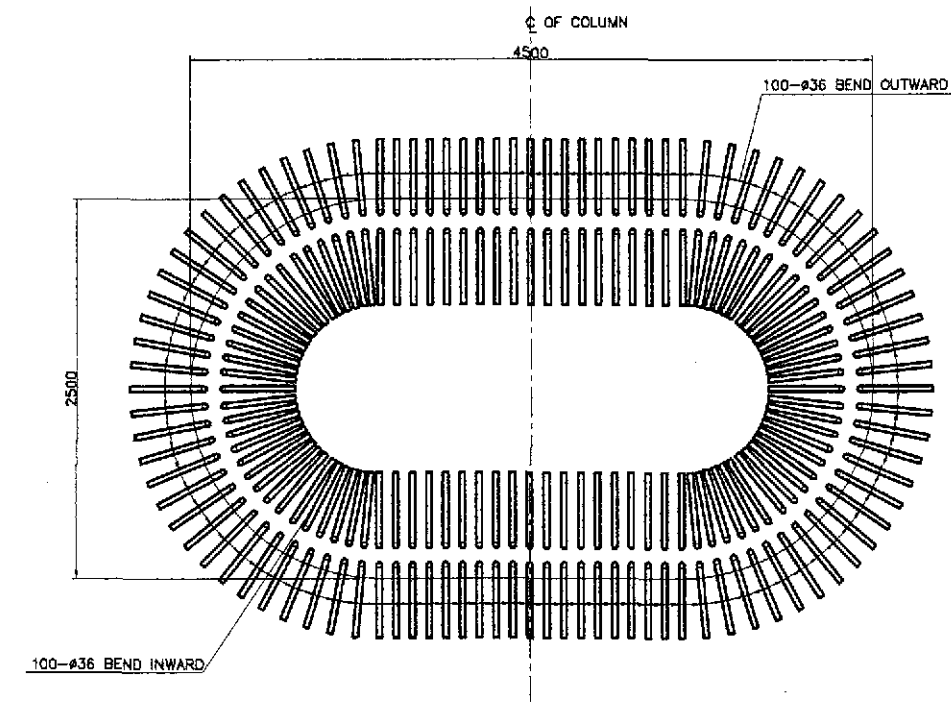
1 SECTION
SCALE 1:50



2 SECTION
SCALE 1:50



A PLAN
SCALE 1:50



B DETAIL OF COLUMN
MAIN BAR ARRANGEMENT @ BOTTOM
SCALE 1:25

PILE CAP REINFORCEMENT DETAILS (PIER 15 & PIER 20)
SCALE AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS
YEO YACHIO ENGINEERING CO., LTD.

DESIGNED: *[Signature]*
CHECKED: *[Signature]*
SUBMITTED: *[Signature]*

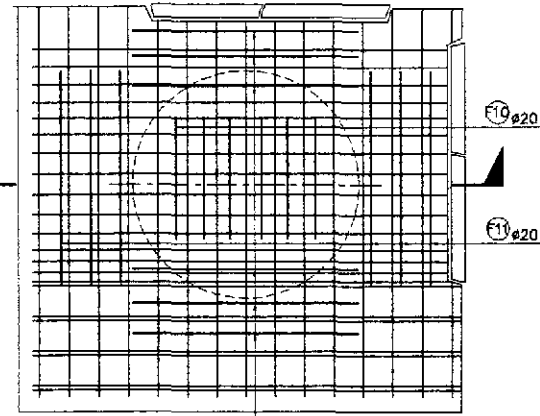
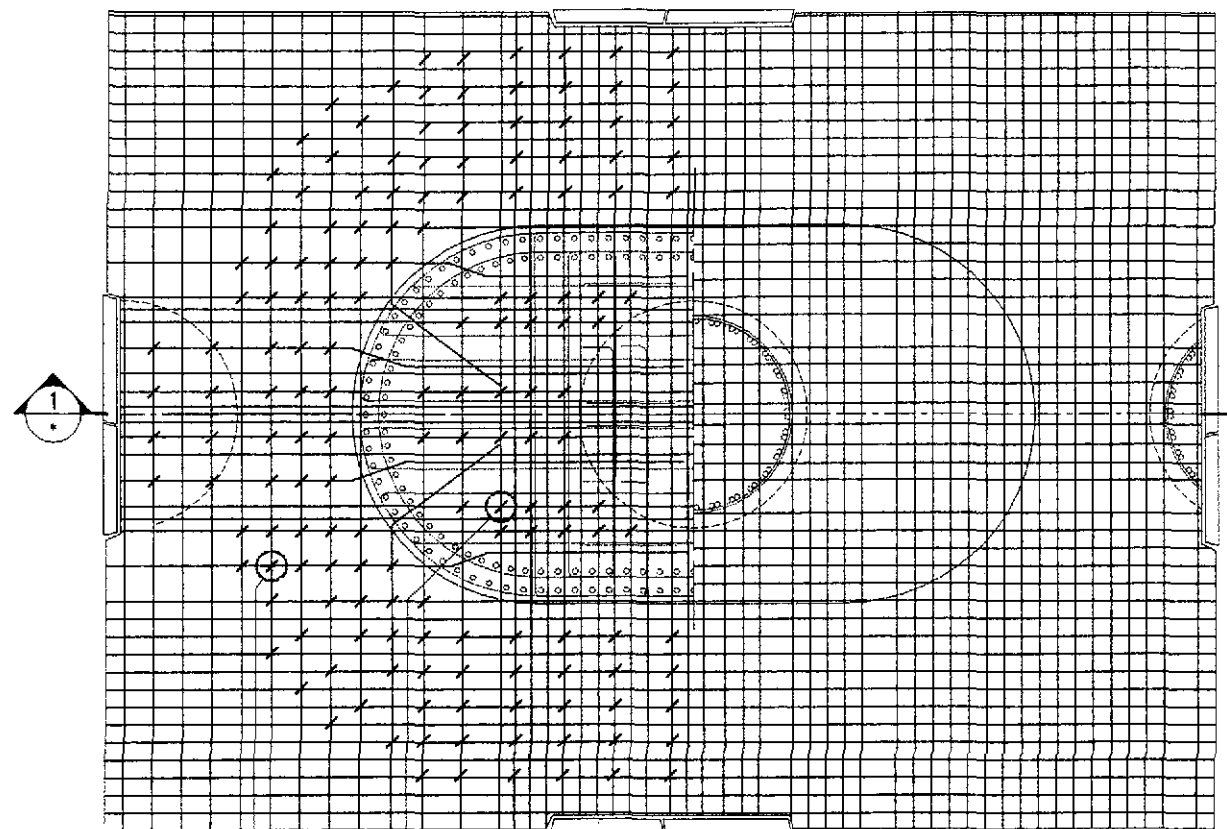
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
Submitted By: **DANILO C. TRAJANO** (Project Director)
Reviewed By: **ADRIANO M. DOROY** (Chief, Bridges Division)
Recommended By: **GILBERTO S. REYES** (Director IV (a/c))
Manuel M. Bondan (Undersecretary)
Simeon A. Datumanong (Secretary)

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
PLARIDEL BYPASS - CONTRACT PACKAGE III

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
PILE CAP REINFORCEMENT DETAILS
(PIER 15 & PIER 20) - 1 OF 2
(ULTIMATE STAGE)

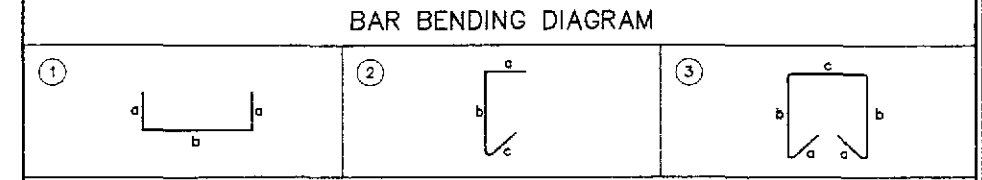
SHEET NO. :
B8M-57



TYPICAL ON PILE-PILECAP CONNECTION

A PLAN SCALE 1:25

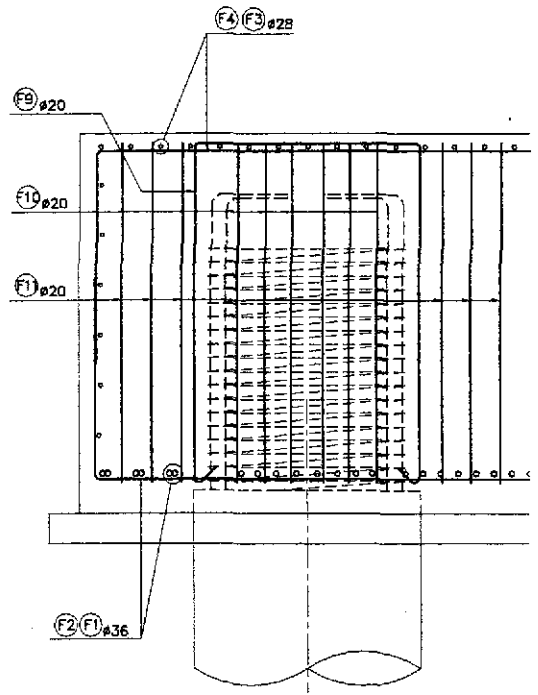
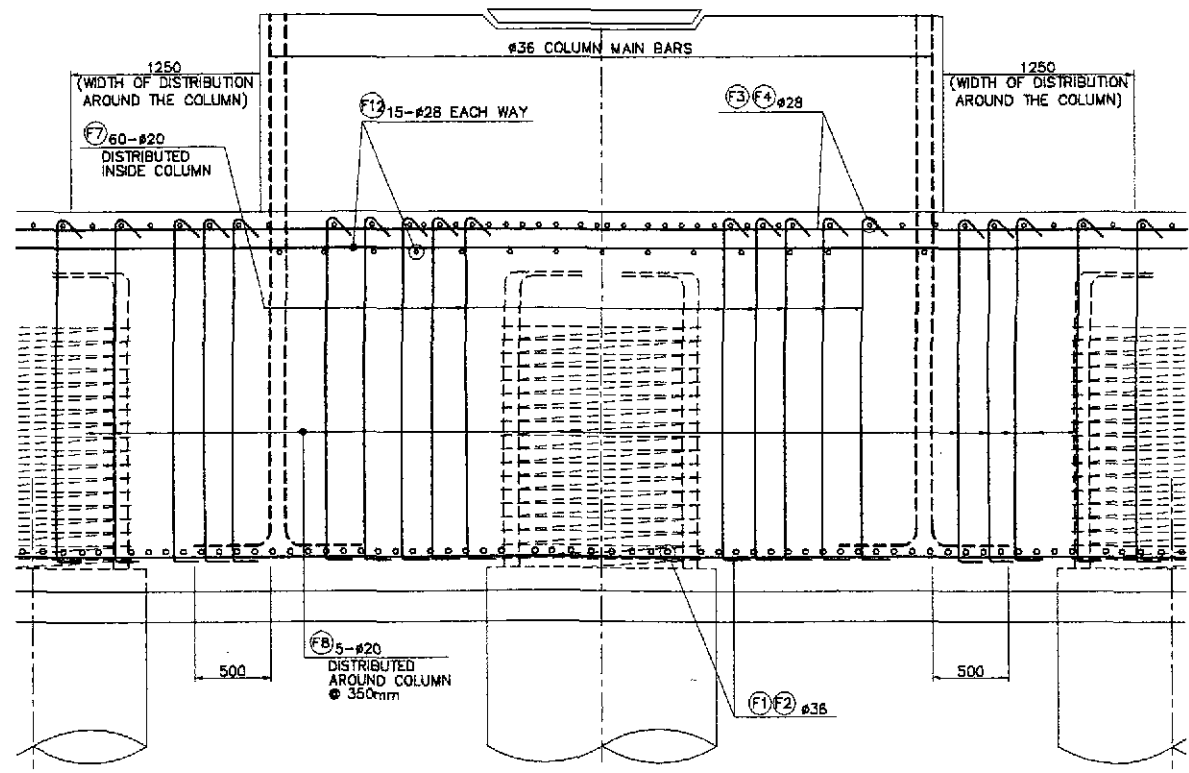
B PLAN SCALE 1:25



SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (Kg.) GRADE 80
				a	b	c	d	e	f				
PIER 15	F1	36	1	1100	10300					12500	84	7.991	8390.55
	F2	36	1	1100	10300					12500	84	7.991	8390.55
	F3	28	1	1100	10300					12500	84	4.833	5074.65
	F4	28	1	1100	10300					12500	84	4.833	5074.65
	F5	25	STR		10000					10000	24	3.854	924.96
	F6	20	2	175	2200	175				2550	340	2.466	2138.02
	F7	20	2	175	2200	175				2550	60	2.466	377.30
	F8	20	2	175	2200	175				2550	266	2.466	1672.69
	F9	20	3	175	2200	175				2550	48	2.466	301.84
	F10	20	3	175	2200	175				2550	48	2.466	301.84
	F11	20	3	175	2200	175				2550	48	2.466	301.84
	F12	28	STR		9000					9000	30	4.833	1304.91
TOTAL WEIGHT = 34253.80 Kgs.													
PIER 20	F1	36	1	1100	10300					12500	84	7.991	8390.55
	F2	36	1	1100	10300					12500	84	7.991	8390.55
	F3	28	1	1100	10300					12500	84	4.833	5074.65
	F4	28	1	1100	10300					12500	84	4.833	5074.65
	F5	25	STR		10000					10000	24	3.854	924.96
	F6	20	2	175	2200	175				2550	340	2.466	2138.02
	F7	20	2	175	2200	175				2550	60	2.466	377.30
	F8	20	2	175	2200	175				2550	266	2.466	1672.69
	F9	20	3	175	2200	175				2550	48	2.466	301.84
	F10	20	3	175	2200	175				2550	48	2.466	301.84
	F11	20	3	175	2200	175				2550	48	2.466	301.84
	F12	28	STR		9000					9000	30	4.833	1304.91
TOTAL WEIGHT = 34253.80 Kgs.													

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.



1 SECTION SCALE 1:25

2 SECTION SCALE 1:25

PILE CAP REINFORCEMENT DETAILS (PIER 15 & PIER 20) AS SHOWN

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/30/02

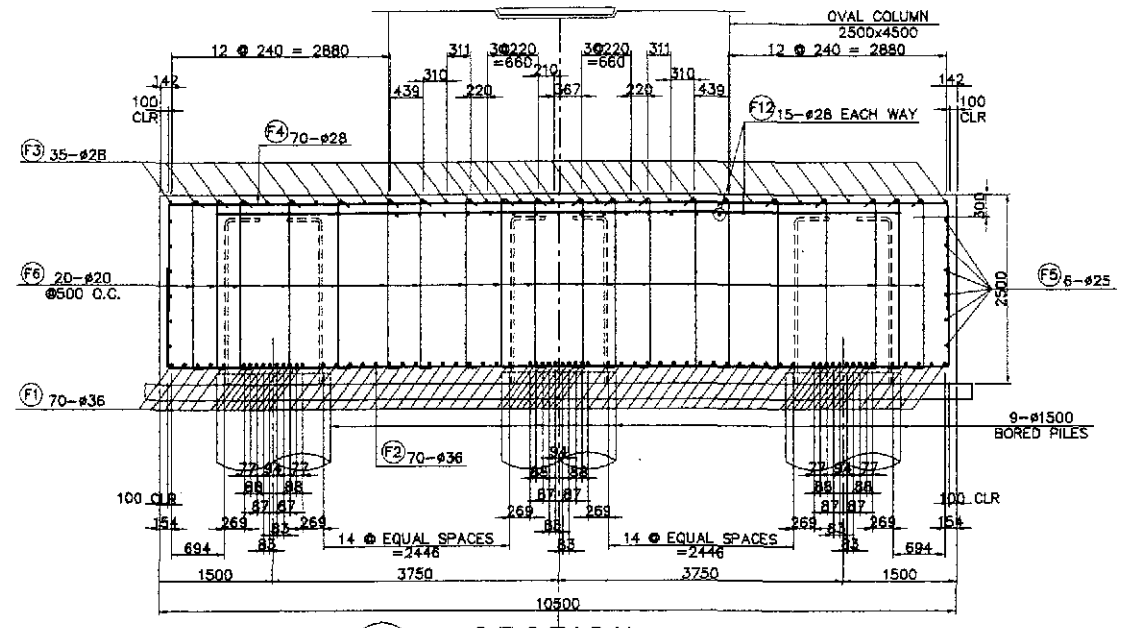
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
Submitted By: DANILLO C. TRAJANO
Reviewed By: ADRIANO M. DOROY
Recommended By: GILBERTO S. REYES
Approved By: MANUEL M. BONOAN
SIMEON A. DATUMANONG

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
PLARIDEL BYPASS - CONTRACT PACKAGE III

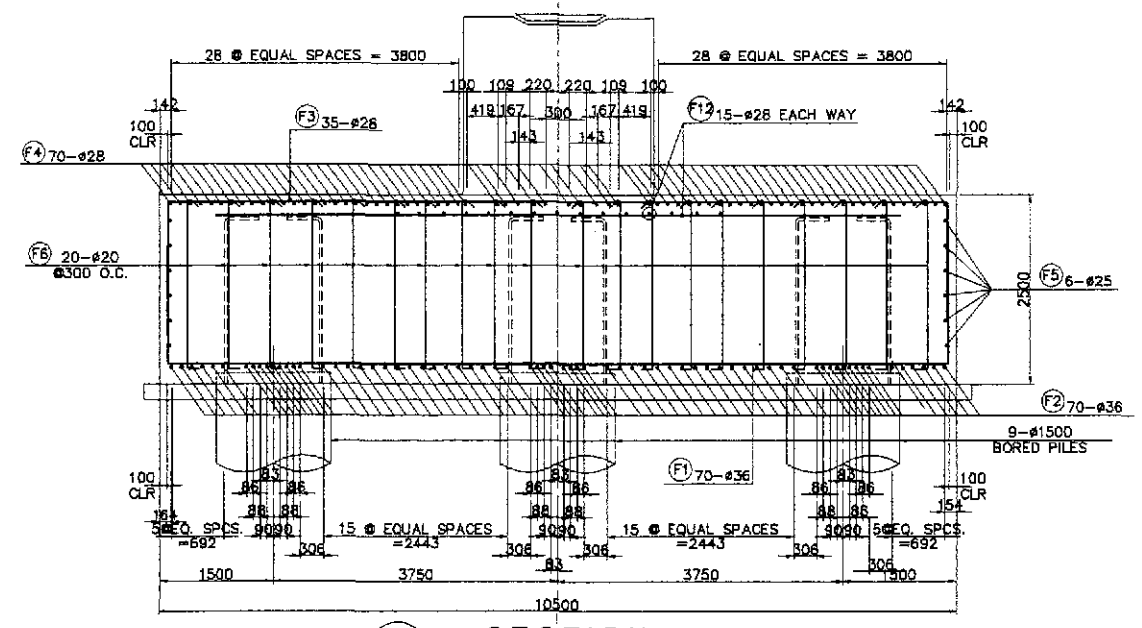
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
PILE CAP REINFORCEMENT DETAILS
(PIER 15 & PIER 20) - 2 OF 2
(ULTIMATE STAGE)

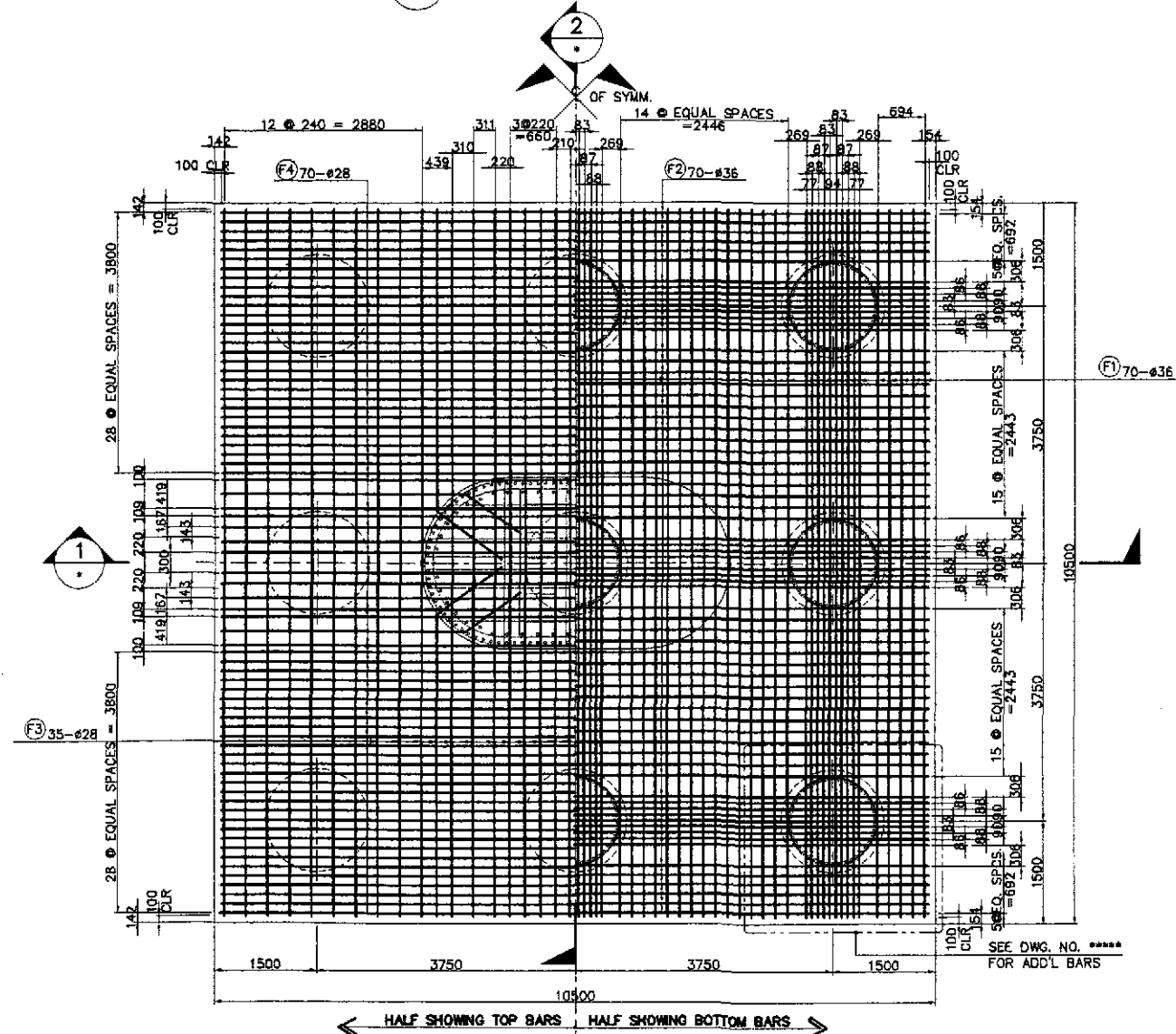
SHEET NO. :
B8M-58



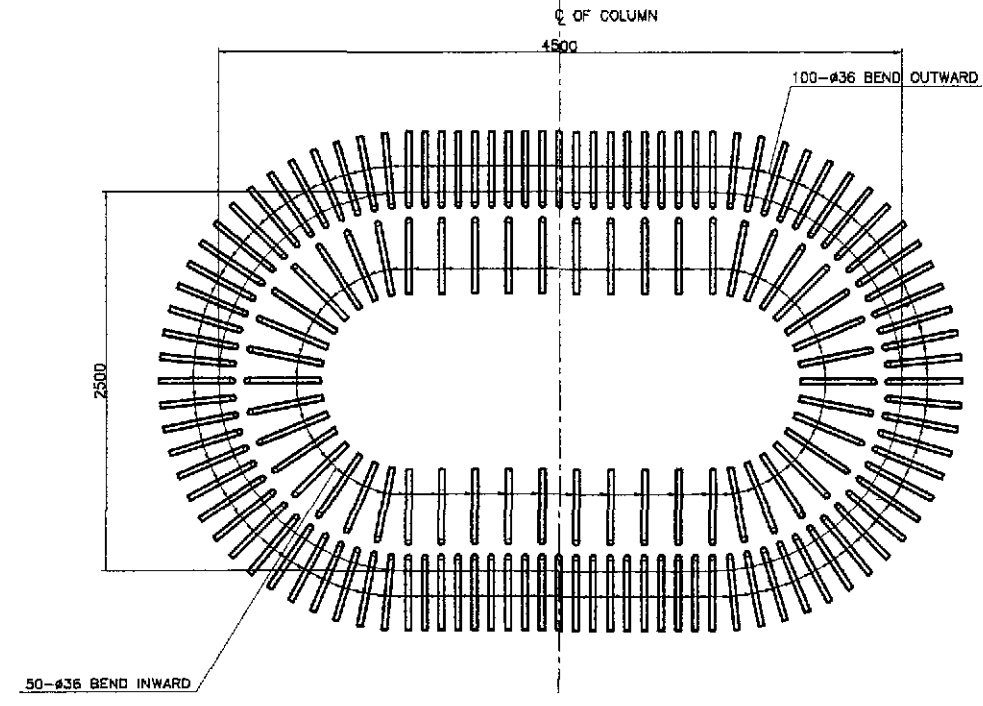
1 SECTION
SCALE 1:50



2 SECTION
SCALE 1:50



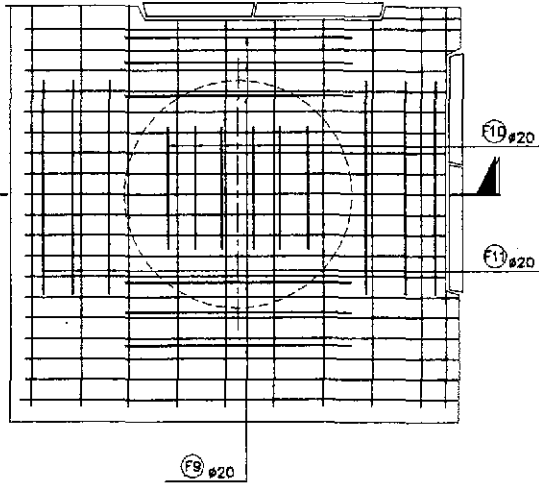
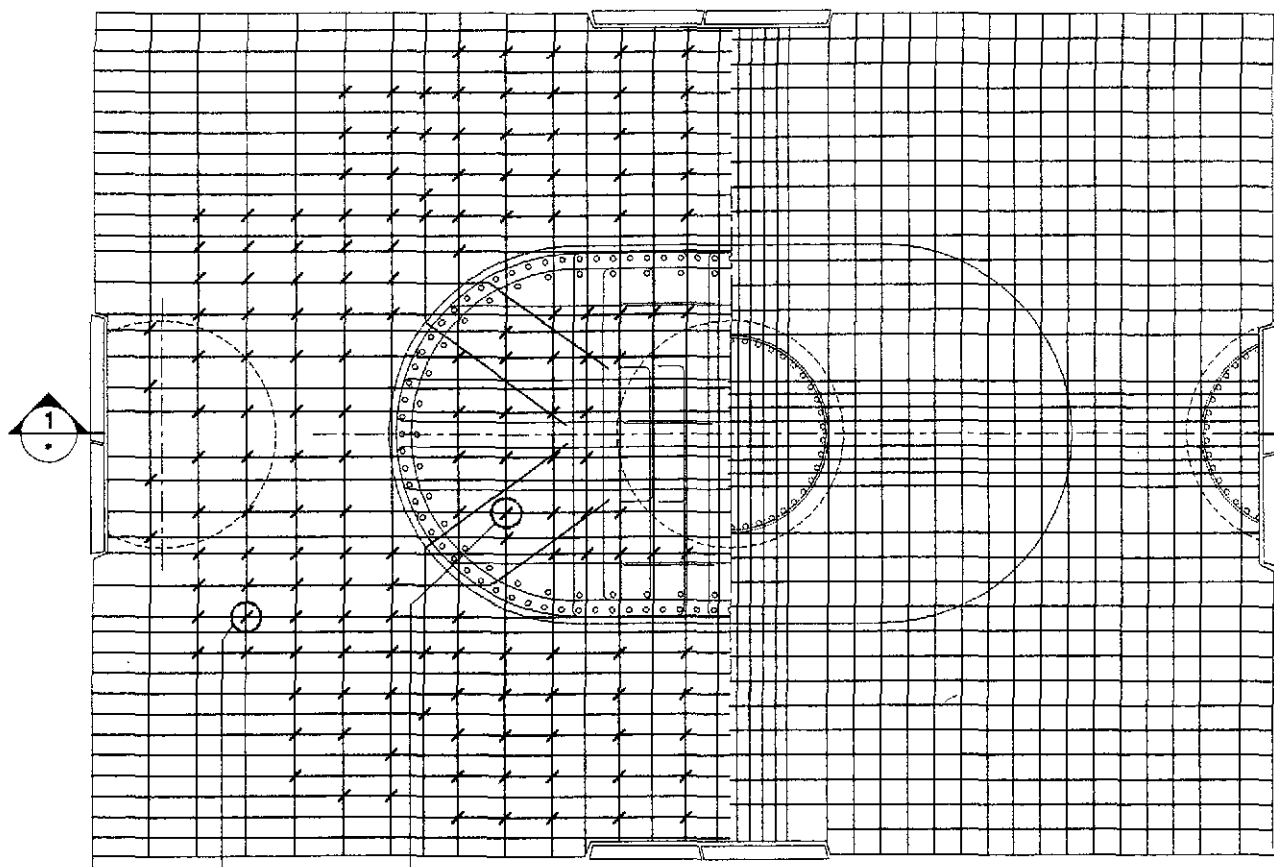
A PLAN
SCALE 1:50



B DETAIL OF COLUMN
MAIN BAR ARRANGEMENT @ BOTTOM
SCALE 1:25

PILE CAP REINFORCEMENT DETAILS (PIER 16 to PIER 19)
SCALE AS SHOWN

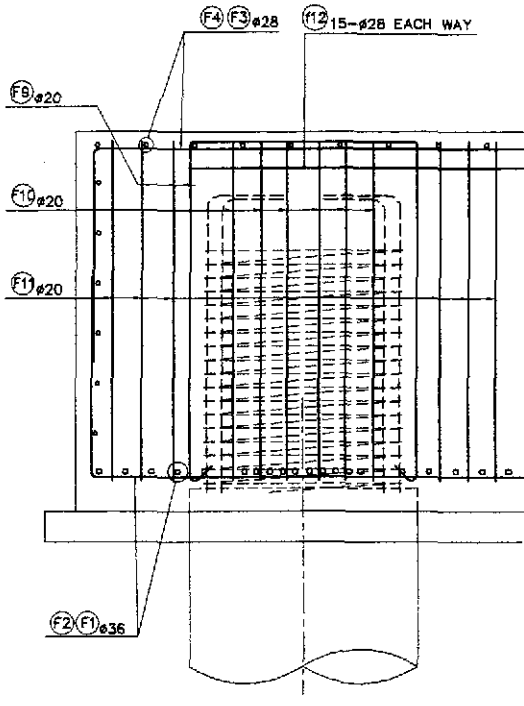
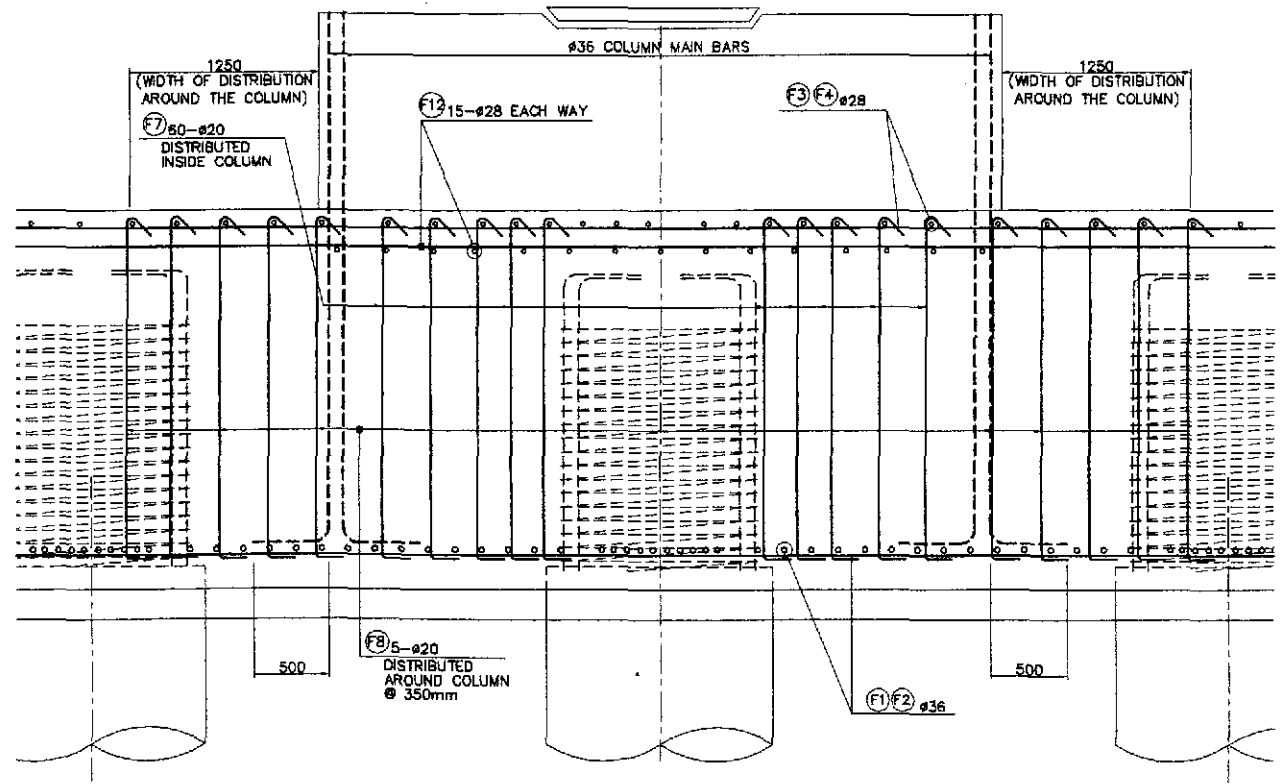
	DESIGNED	DATE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE III	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 8 ANGAT RIVER BRIDGE PILE CAP REINFORCEMENT DETAILS (PIER 16 - PIER 19) - 1 OF 2 (ULTIMATE STAGE)	SHEET NO. : B8M-59
	CHECKED			BUREAU OF DESIGN						
	SUBMITTED			Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (CIC)				



TYPICAL ON PILE-PILE CAP CONNECTION

PLAN SCALE 1:25

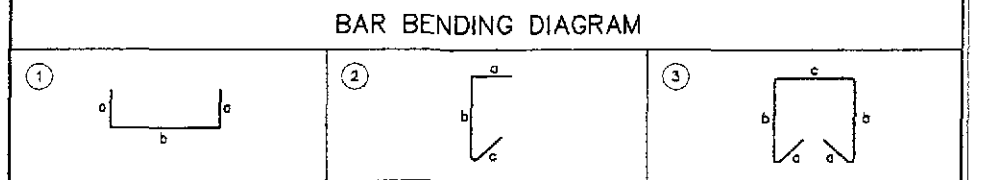
PLAN SCALE 1:25



SECTION 1 SCALE 1:25

SECTION 2 SCALE 1:25

PILE CAP REINFORCEMENT DETAILS (PIER 16 TO PIER 19) SCALE AS SHOWN



SCHEDULE OF REINFORCEMENT													
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (Kg) GRADE 60
				a	b	c	d	e	f				
PIER 16	F1	36	1	1100	10300					12500	70	7.991	6992.13
	F2	36	1	1100	10300					12500	70	7.991	6992.13
	F3	28	1	1100	10300					12500	35	4.833	2114.44
	F4	28	1	1100	10300					12500	70	4.833	4228.88
	F5	25	STR	10000						10000	24	3.854	924.96
	F6	20	2	175	2200	175				2550	340	2.466	2138.02
	F7	20	2	175	2200	175				2550	60	2.466	377.30
	F8	20	2	175	2200	175				2550	270	2.466	1697.84
	F9	20	3	175	2200	175				2550	48	2.466	301.84
	F10	20	3	175	2200	175				2550	48	2.466	301.84
	F11	20	3	175	2200	175				2550	48	2.466	301.84
	F12	28	2	8000	2200					9000	30	4.833	1304.91
TOTAL WEIGHT											=	27876.11 Kgs.	
PIER 17	F1	36	1	1100	10300					12500	70	7.991	6992.13
	F2	36	1	1100	10300					12500	70	7.991	6992.13
	F3	28	1	1100	10300					12500	35	4.833	2114.44
	F4	28	1	1100	10300					12500	70	4.833	4228.88
	F5	25	STR	10000						10000	24	3.854	924.96
	F6	20	2	175	2200	175				2550	340	2.466	2138.02
	F7	20	2	175	2200	175				2550	60	2.466	377.30
	F8	20	2	175	2200	175				2550	270	2.466	1697.84
	F9	20	3	175	2200	175				2550	48	2.466	301.84
	F10	20	3	175	2200	175				2550	48	2.466	301.84
	F11	20	3	175	2200	175				2550	48	2.466	301.84
	F12	28	2	8000	2200					9000	30	4.833	1304.91
TOTAL WEIGHT											=	27876.11 Kgs.	
PIER 18	F1	36	1	1100	10300					12500	70	7.991	6992.13
	F2	36	1	1100	10300					12500	70	7.991	6992.13
	F3	28	1	1100	10300					12500	35	4.833	2114.44
	F4	28	1	1100	10300					12500	70	4.833	4228.88
	F5	25	STR	10000						10000	24	3.854	924.96
	F6	20	2	175	2200	175				2550	340	2.466	2138.02
	F7	20	2	175	2200	175				2550	60	2.466	377.30
	F8	20	2	175	2200	175				2550	270	2.466	1697.84
	F9	20	3	175	2200	175				2550	48	2.466	301.84
	F10	20	3	175	2200	175				2550	48	2.466	301.84
	F11	20	3	175	2200	175				2550	48	2.466	301.84
	F12	28	2	8000	2200					9000	30	4.833	1304.91
TOTAL WEIGHT											=	27876.11 Kgs.	
PIER 19	F1	36	1	1100	10300					12500	70	7.991	6992.13
	F2	36	1	1100	10300					12500	70	7.991	6992.13
	F3	28	1	1100	10300					12500	35	4.833	2114.44
	F4	28	1	1100	10300					12500	70	4.833	4228.88
	F5	25	STR	10000						10000	24	3.854	924.96
	F6	20	2	175	2200	175				2550	340	2.466	2138.02
	F7	20	2	175	2200	175				2550	60	2.466	377.30
	F8	20	2	175	2200	175				2550	270	2.466	1697.84
	F9	20	3	175	2200	175				2550	48	2.466	301.84
	F10	20	3	175	2200	175				2550	48	2.466	301.84
	F11	20	3	175	2200	175				2550	48	2.466	301.84
	F12	28	2	8000	2200					9000	30	4.833	1304.91
TOTAL WEIGHT											=	27876.11 Kgs.	
TOTAL WEIGHT FOR (4) PIERS											=	110704.43 Kgs.	

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS
INTERNATIONAL

YEO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

OFFICE OF THE SECRETARY

Submitted By: **DANILO C. TRAJANO** Project Director

Reviewed By: **ADRIANO M. DOROY** Chief, Bridges Division

Recommended By: **GILBERTO S. REYES** Director IV (CIC)

Recommended By: **MANUEL M. BONJAN** Undersecretary

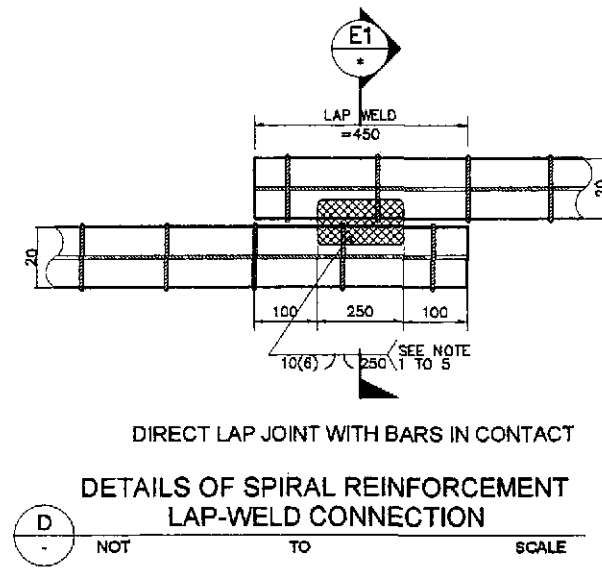
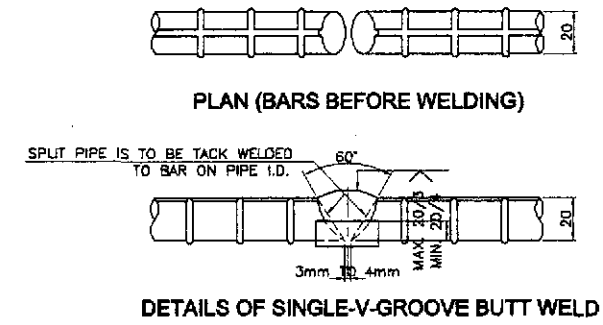
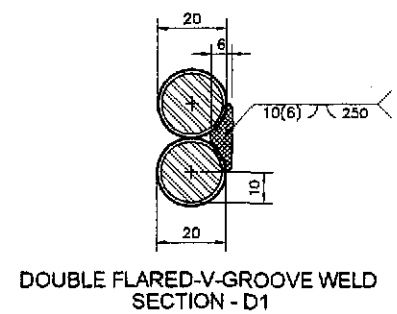
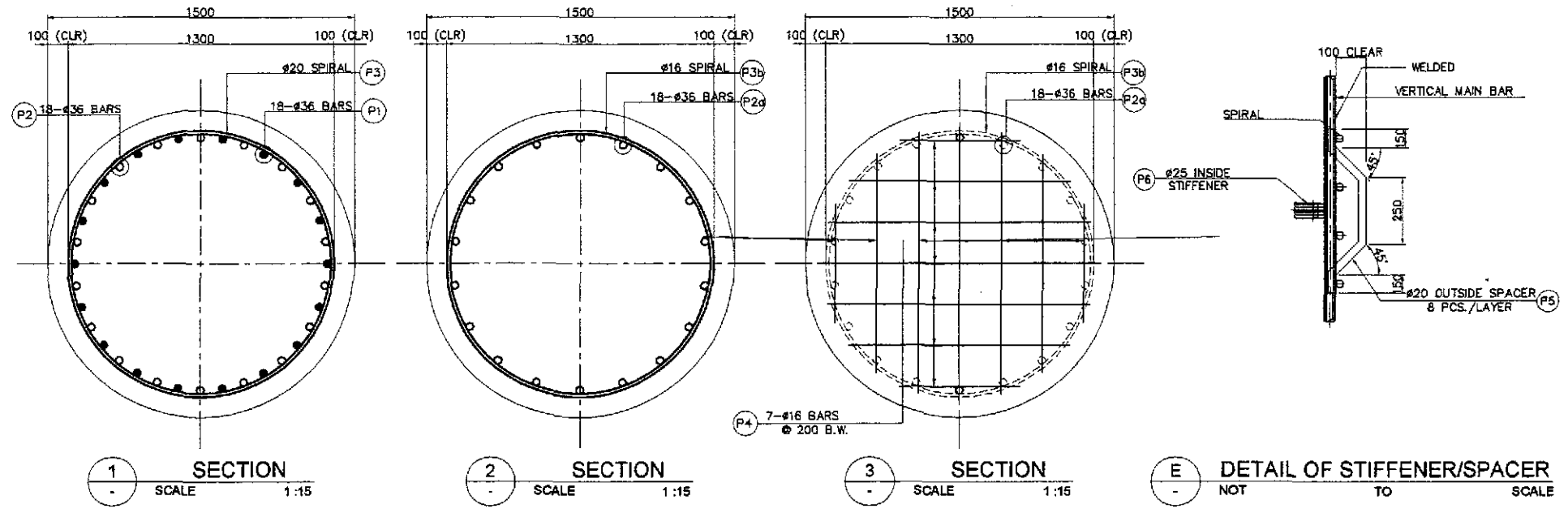
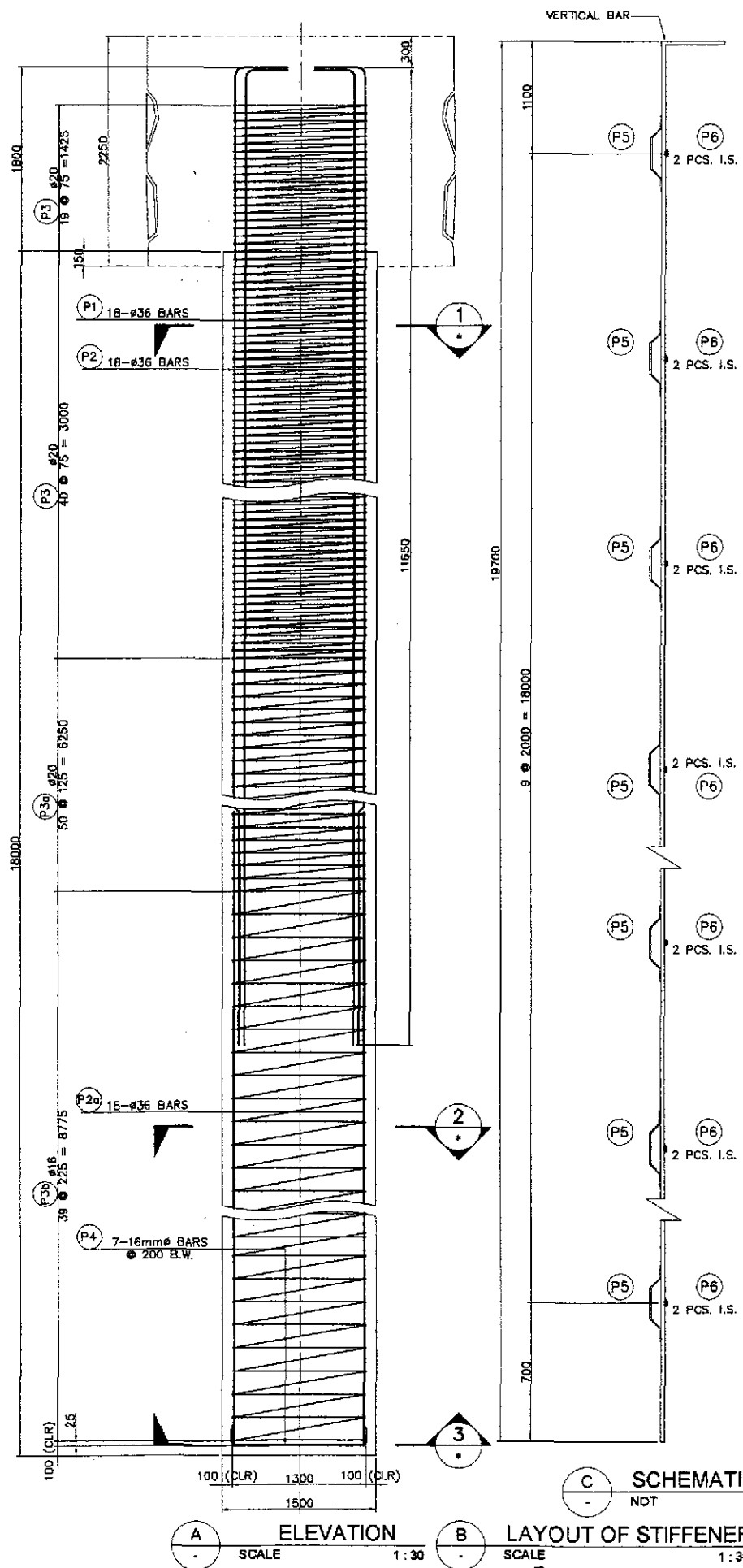
Approved By: **SIMEON A. DATUNANING** Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)

SCALE :
AS SHOWN

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
PILE CAP REINFORCEMENT DETAILS
(PIER 16 - PIER 19) - 2 OF 2
(ULTIMATE STAGE)

SHEET NO. :
B8M-60



- NOTES ON LAP WELD CONNECTION**
1. TIES REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE).
 2. WELDING SHOULD CONFORM TO ANSI/AWS D1.4-92 "STRUCTURAL WELDING CODE REINFORCEMENT STEEL".
 3. USE ELECTRODE E60XX-X.
 4. CARE SHOULD BE TAKEN NOT TO DAMAGE THE BORED PILE MAIN BARS DURING WELDING.
 5. SPIRAL REINFORCEMENT SHOULD BE BUTT WELDED WHERE SPIRAL PITCH IS 75mm. OTHERWISE, USE LAP WELD SPLICE.

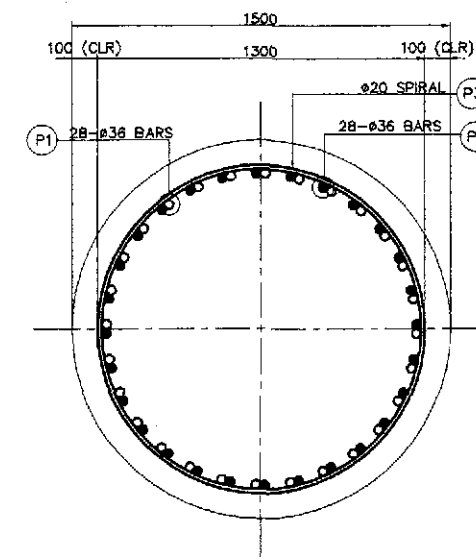
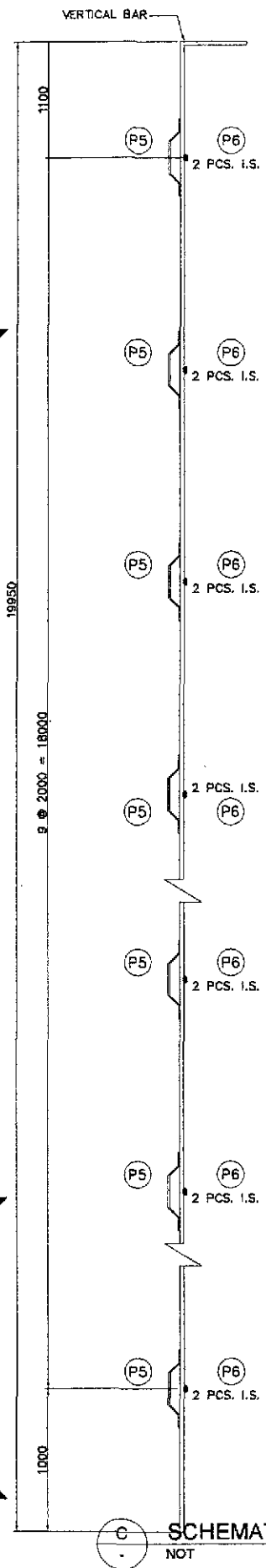
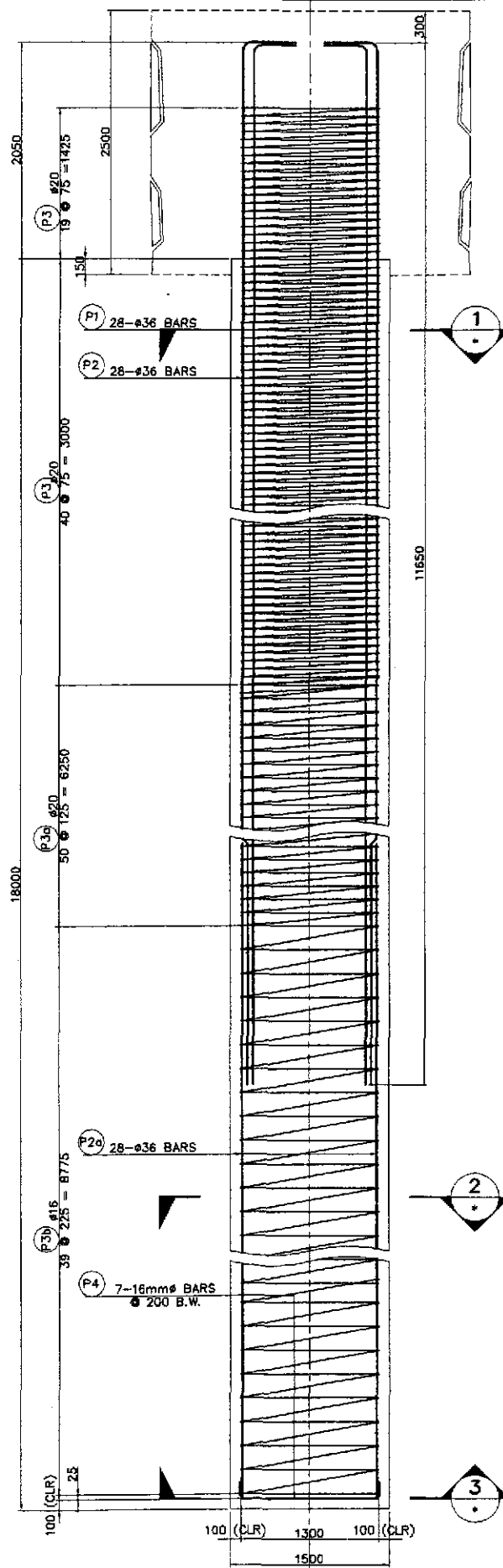
BAR BENDING DIAGRAM

SCHEDULE OF REINFORCEMENT

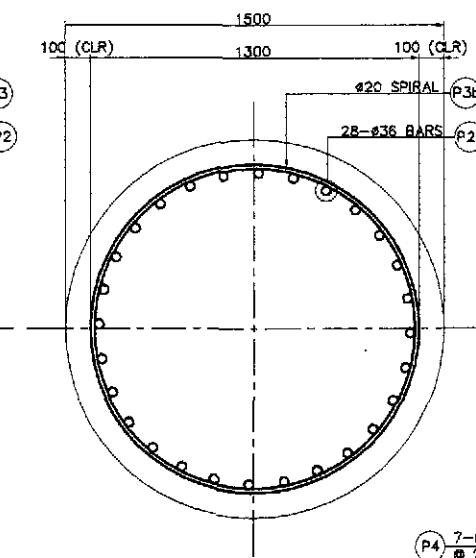
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (Kg.) GRADE 60	WEIGHT (Kg.) GRADE 40
				a	b	c	d	e	f					
PIER 14	P1	36	1	11600	400					12,000	18	7.991	1,726.06	
	P2	36	1	11600	400					12,000	18	7.991	1,726.06	
	P2a	36	STR	10500						10,500	18	7.991	1,510.30	
	P3	20	2	90	1300					278,078	1	2.466	685.74	
	P3a	20	2	125	1300					235,730	1	2.466	581.31	
	P3b	16	2	225	1300					178,567	1	1.579		281.96
	P5	20	2	150	200	250				950	72	2.466	108.00	
	P6	25	4	1300	300					4,284	20	3.854	330.22	
	P4	16	5	200	1335					1,193	14	1.579		26.36
														6,879.68 Kgs.
														TOTAL WEIGHT FOR 1 PIER (6 PILES) :
														1,848.92 Kgs.
														40,078.08 Kgs.
PIER 21	P1	36	1	11600	400					12,000	18	7.991	1,726.06	
	P2	36	1	11600	400					12,000	18	7.991	1,726.06	
	P2a	36	STR	10500						10,500	18	7.991	1,510.30	
	P3	20	2	90	1300					278,078	1	2.466	685.74	
	P3a	20	2	125	1300					235,730	1	2.466	581.31	
	P3b	16	2	225	1300					178,567	1	1.579		281.96
	P5	20	2	150	200	250				950	72	2.466	108.00	
	P6	25	4	1300	300					4,284	20	3.854	330.22	
	P4	16	5	200	1335					1,193	14	1.579		26.36
														6,879.68 Kgs.
														TOTAL WEIGHT FOR 1 PIER (6 PILES) :
														1,848.92 Kgs.
														40,078.08 Kgs.

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

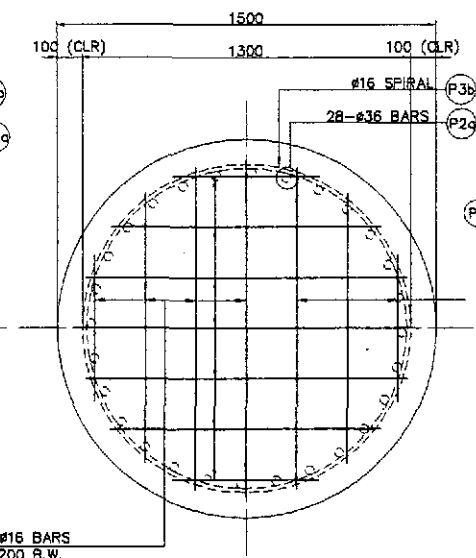
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/27/02	[Signature]	BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE BORED PILE REINFORCEMENT DETAILS (P14 & P21) (ULTIMATE STAGE)	B8M-61
	SUBMITTED	9/26/02	[Signature]	Submitted By:	Reviewed By:	Recommended By:	FULL SIZE A1			
				DANILO C. TRAJANO Project Director	ADRIANO M. DOROY Chief, Bridges Division	GILBERTO S. REYES Director IV (OIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANDING Secretary		



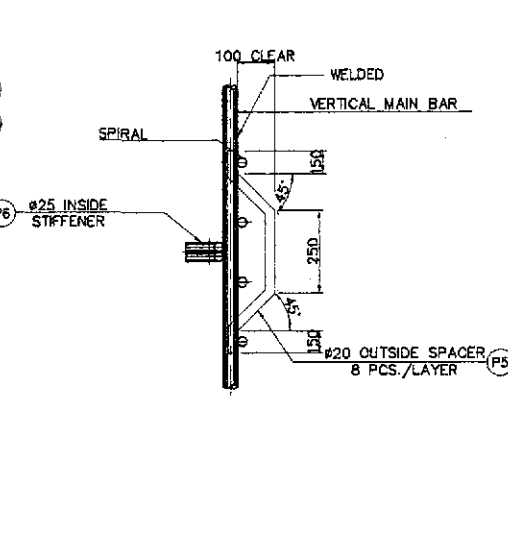
1 SECTION SCALE 1:15



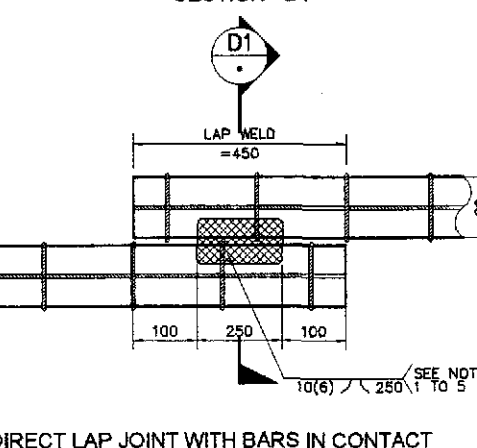
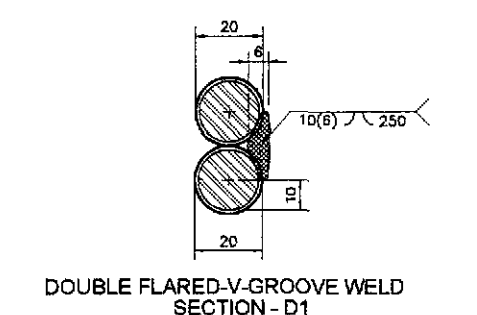
2 SECTION SCALE 1:15



3 SECTION SCALE 1:15



E DETAIL OF STIFFENER/SPACER NOT TO SCALE

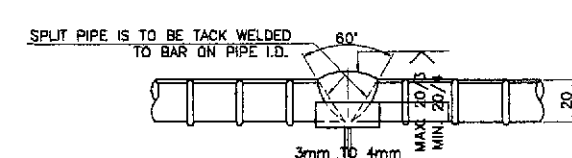


D DETAILS OF TIES REIN. LAP-WELD CONNECTION NOT TO SCALE

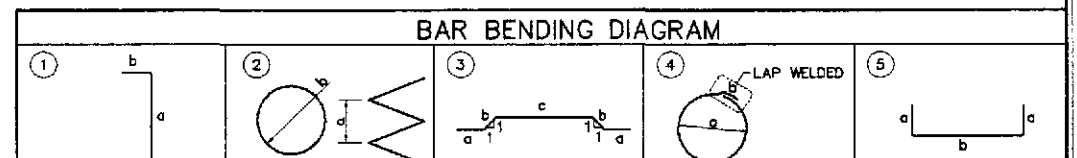
- NOTES ON LAP WELD CONNECTION**
1. TIES REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE).
 2. WELDING SHOULD CONFORM TO ANSI/AWS D1.4-92 "STRUCTURAL WELDING CODE REINFORCEMENT STEEL".
 3. USE ELECTRODE E80XX-X.
 4. CARE SHOULD BE TAKEN NOT TO DAMAGE THE BORED PILE MAIN BARS DURING WELDING.
 5. SPIRAL REINFORCEMENT SHOULD BE BUTT WELDED WHERE SPIRAL PITCH IS 75mm. OTHERWISE, USE LAP WELD SPLICE.



PLAN (BARS BEFORE WELDING)



DETAILS OF SINGLE-V-GROOVE BUTT WELD



SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg) GRADE 60	WEIGHT (kg) GRADE 40
				a	b	c	d	e	f					
PIER 15 & PIER 20	P1	36	1	11600	400					12000	28	7.991	2,684.98	
	P2	36	1	11600	400					12000	28	7.991	2,684.98	
	P2a	36	STR	10750						10750	28	7.991	2,405.29	
	P3	20	2	75	1300					278078	1	2.466	685.55	
	P3a	20	2	125	1300					235730	1	2.466	581.31	
	P3b	16	2	225	1300					178567	1	1.579	281.96	
	P5	20	3	150	200	250				950	72	2.466	168.67	
	P6	25	4	1300	300					4284	20	3.854	330.22	
	P4	16	5	200	1335					1183	14	1.579	26.36	
												WEIGHT FOR GRADE 40 =	308.32 Kgs.	
												WEIGHT FOR GRADE 60 =	9,541.00 Kgs.	
												TOTAL WEIGHT FOR 2 PIERS (18 PILES) :		
												WEIGHT FOR GRADE 40 =	5,549.78 Kgs.	
												WEIGHT FOR GRADE 60 =	171,738.00 Kgs.	

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS
INTERNATIONAL

YEO YACHIYO ENGINEERING CO., LTD.

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/28/02

SIGNATURE: [Signature]
[Signature]
[Signature]

DATE: 9/25/02
9/27/02
9/28/02

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

OFFICE OF THE SECRETARY

Submitted By: DANILLO C. TRAJANO
Reviewed By: ADRIANO M. DOROS
Recommended By: GILBERTO S. REYES
Approved By: MANUEL M. BONDAN
SIMEON A. DATUMANONG

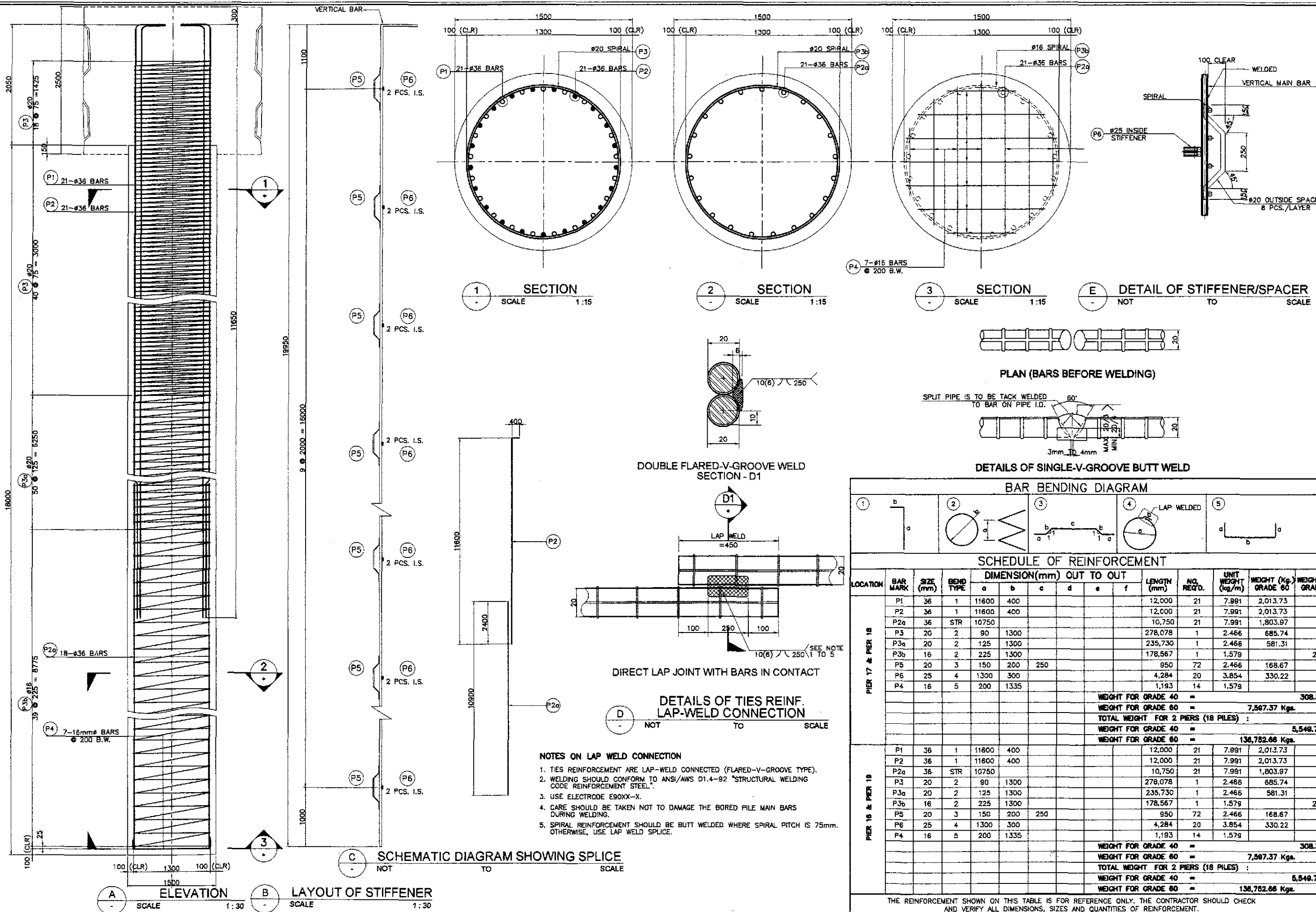
Project Director
Chief, Bridges Division
Director IV (CIC)
Undersecretary
Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
BORED PILE REINFORCEMENT DETAILS
(PIER 15 & PIER 20)
(ULTIMATE STAGE)

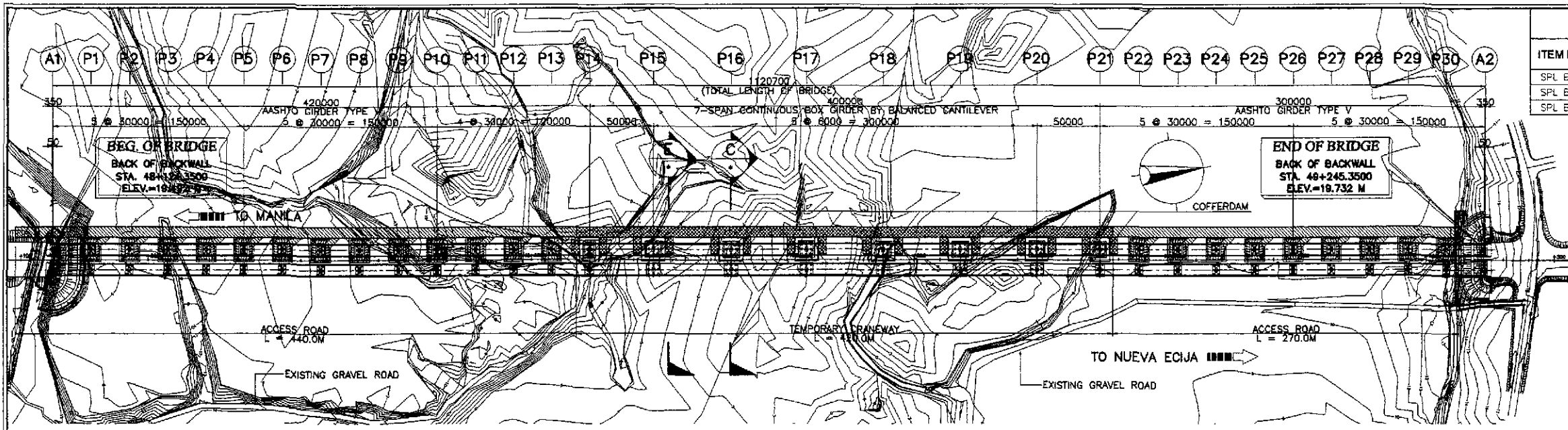
SHEET NO. :
B8M-62



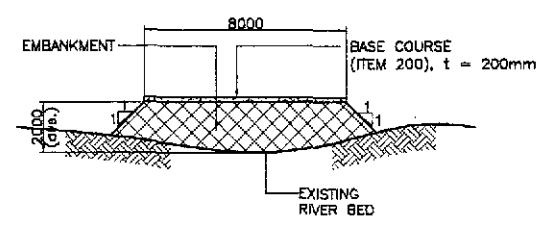
- NOTES ON LAP WELD CONNECTION**
1. TIES REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE).
 2. WELDING SHOULD CONFORM TO ANSI/AWS D1.4-92 "STRUCTURAL WELDING CODE REINFORCEMENT STEEL".
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 5. SPIRAL REINFORCEMENT SHOULD BE BUTT WELDED WHERE SPIRAL PITCH IS 75mm. OTHERWISE, USE LAP WELD SPLICE.

CONSTRUCTION WORKS

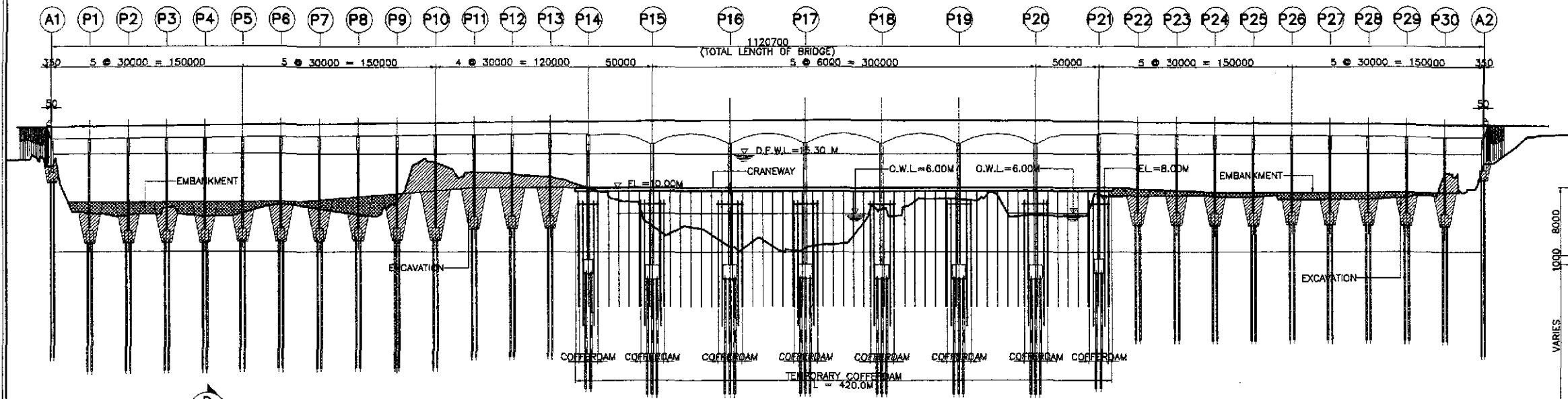
SUMMARY OF QUANTITIES FOR TEMPORARY WORKS					
ITEM NO.	DESCRIPTION	UNIT	INITIAL STAGE	ULTIMATE STAGE	TOTAL
SPL B.4a	CRANEWAY/JETTY (8.0 m WIDTH)	l.m.	420	420	840
SPL B.4b	CRANEWAY/JETTY (6.0 m WIDTH)	l.m.	195	208	416
SPL B.4c	ACCESS ROAD (8.0 m WIDTH)	l.m.	710	710	1420



A PLAN
SCALE 1:2000

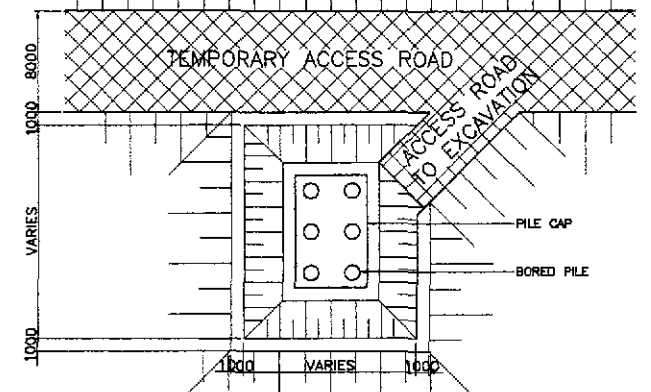


I SECTION (ACCESS ROAD)
SCALE 1:150

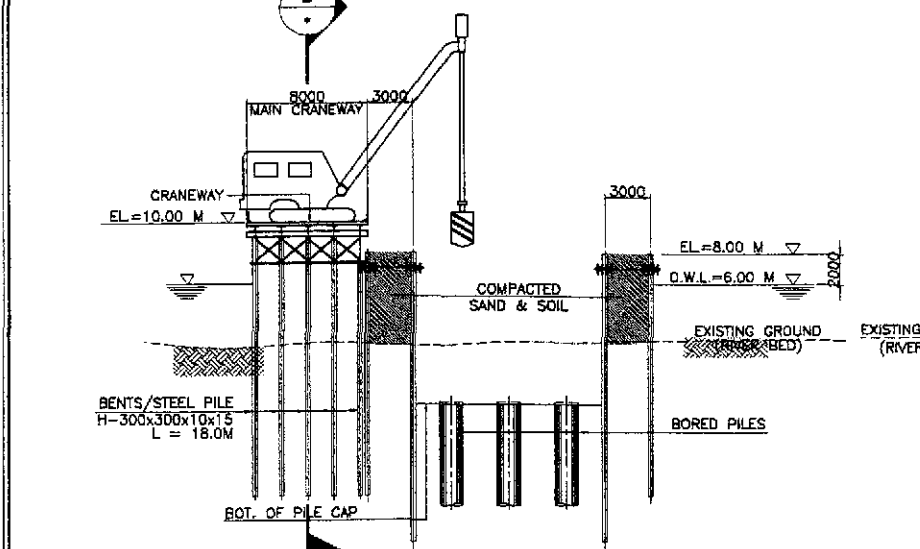


B ELEVATION
SCALE H=1:2000, V=1:400

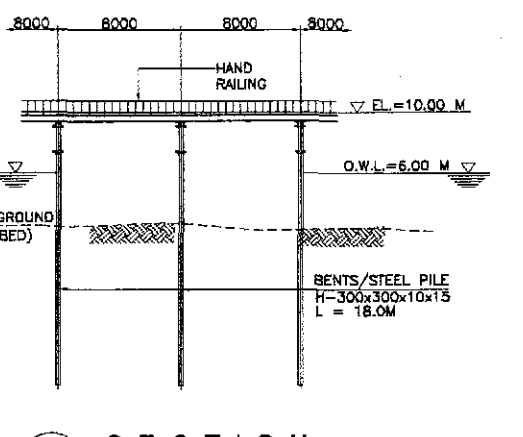
H FOUNDATION EXCAVATION DETAILS
SCALE 1:200



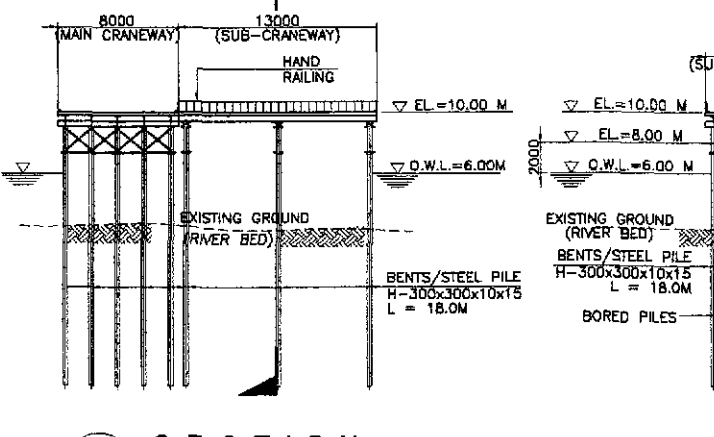
G ACCESS ROAD DETAIL (PLAN)
SCALE 1:300



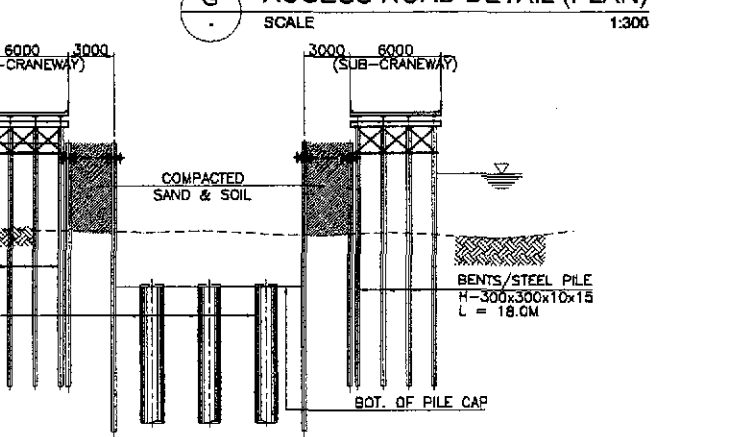
C SECTION
SCALE 1:250



D SECTION
SCALE 1:250

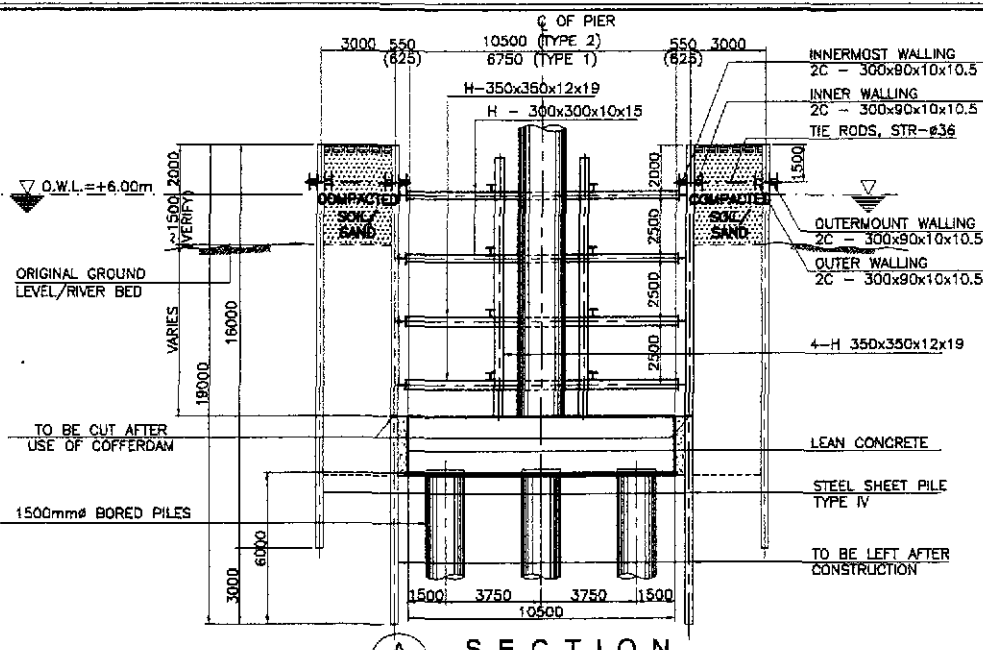


E SECTION
SCALE 1:250

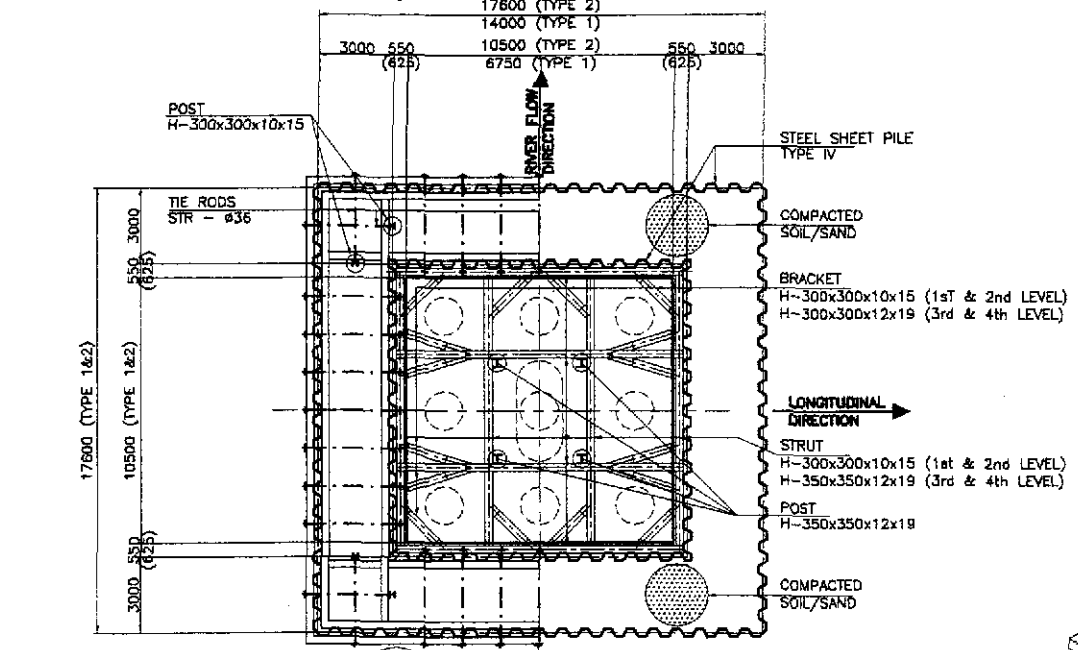


F SECTION
SCALE 1:250

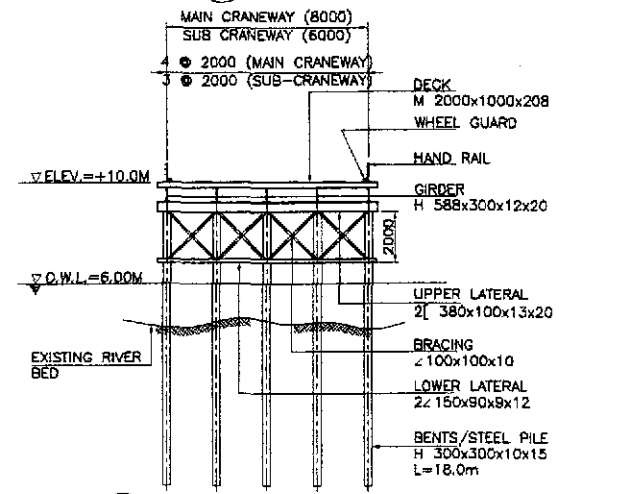
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) PLARIDEL BYPASS - CONTRACT PACKAGE III	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 8 ANGAT RIVER BRIDGE DETAILS OF TEMPORARY CRANEWAY BRIDGE & COFFERDAM (1 OF 2) (ULTIMATE STAGE)	SHEET NO. : B8M-71
	CHECKED	9/25/02	[Signature]		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS							
	SUBMITTED	9/25/02	[Signature]		BUREAU OF DESIGN							
					OFFICE OF THE SECRETARY							
				Submitted By: DANILO C. TRAJANO Project Director Reviewed By: ADRIANO M. DORAY Chief, Bridges Division Recommended By: GILBERTO S. REYES Director IV (D/C) Recommended By: MANUEL M. BONDAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary								



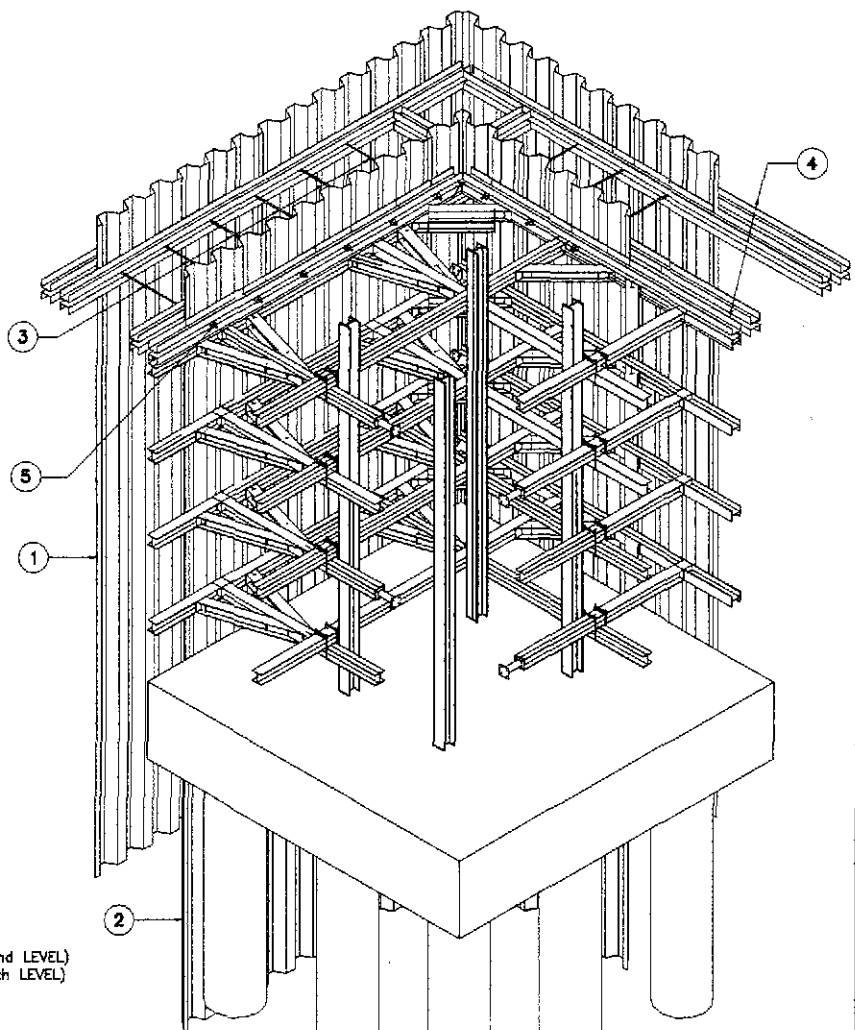
A SECTION
SCALE 1:300



B PLAN
SCALE 1:300



C CRANEWAY SECTION
SCALE 1:300

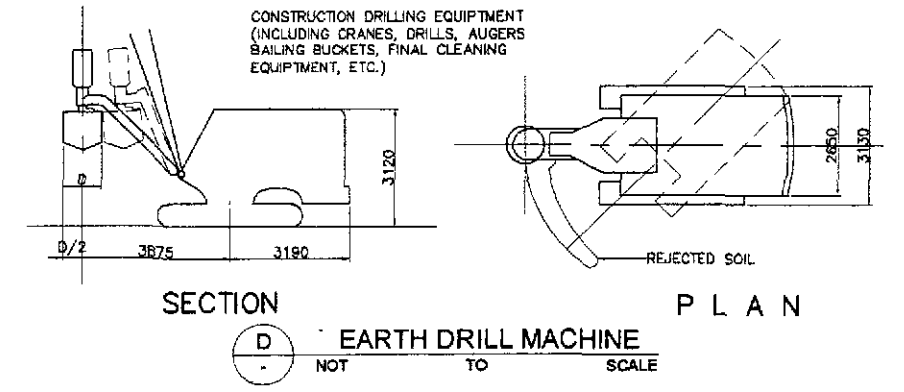


C ISOMETRIC VIEW
NOT TO SCALE

- LEGEND :**
- ① OUTER SHEET PILE
 - ② INNER SHEET PILE
 - ③ TIE RODS
 - ④ WALLING
 - ⑤ NUTS AND WASHER
 - ⑥ HAND RAIL
 - ⑦ DECK PLATE
 - ⑧ MAIN GIRDER

COFFERDAM SCHEDULE

TYPE	PILE CAP SIZE	LOCATION	QUANTITY
1	6750 x 10500	PIER 14 & PIER 21	2
2	10500 x 10500	PIER 15 to PIER 20	6



D SECTION
D PLAN
EARTH DRILL MACHINE
NOT TO SCALE

MATERIAL LIST OF TEMPORARY COFFERDAM (PER PIER)

MATERIAL NAME	SIZE	LENGTH (m)	NO. (PCS)	UNIT	UNIT WT. (kg/m)	WEIGHT (kg.)	REMARKS
TYPE 1 (6.75 x 10.5)							
Steel Sheet Pile (inner)	IV	18.00	98	kg	76.10	141,699.00	
Steel Sheet Pile (outer)	IV	16.00	158	kg	76.10	192,381.00	
Steel Strut, 1st& 2nd Level (Longitudinal)	H-300x300x10x15	6.85	4	kg	94.00	2,576.00	
Steel Strut, 1st& 2nd Level (Transverse)	H-300x300x10x15	10.60	4	kg	94.00	3,986.00	
Steel Strut, 3rd& 4th Level (Longitudinal)	H-350x350x12x19	6.85	4	kg	137.00	3,754.00	
Steel Strut, 3rd& 4th Level (Transverse)	H-350x350x12x19	10.60	4	kg	137.00	5,809.00	
Steel Waling (inner - longitudinal)	C-300x90x10x10.5	13.45	4	kg	43.80	2,357.00	
Steel Waling (innermost - longitudinal)	C-300x90x10x10.5	7.45	4	kg	43.80	1,306.00	
Steel Waling (inner - transverse)	C-300x90x10x10.5	17.20	4	kg	43.80	3,014.00	
Steel Waling (innermost - transverse)	C-300x90x10x10.5	11.20	4	kg	43.80	1,963.00	
Steel Waling (outer - longitudinal)	C-300x90x10x10.5	13.45	4	kg	43.80	2,357.00	
Steel Waling (outer - longitudinal)	C-300x90x10x10.5	14.25	4	kg	43.80	2,487.00	
Steel Waling (outer - transverse)	C-300x90x10x10.5	17.20	4	kg	43.80	3,014.00	
Steel Waling (outer - transverse)	C-300x90x10x10.5	18.00	4	kg	43.80	3,154.00	
Steel Post	H-300x300x10x15	16.00	8	kg	94.00	12,032.00	
Steel Post	H-300x300x12x19	16.00	4	kg	137.00	8,768.00	
Steel Bracket, 1st&2nd Level	H-300x300x10x15	2.00	24	kg	94.00	4,512.00	
Steel Bracket, 3rd&4th Level	H-350x350x12x19	2.00	24	kg	137.00	6,576.00	
Tie Rods	STR - Ø36	3.50	32	kg	7.99	895.00	
Sand/Soil	Borrow Materials			m ³		610.80	Selected Materials
TYPE 2 (10.5 x 10.5)							
Steel Sheet Pile (inner)	IV	18.00	116	kg	76.10	167,725.00	
Steel Sheet Pile (outer)	IV	16.00	176	kg	76.10	214,288.00	
Steel Strut, 1st& 2nd Level	H-300x300x10x15	10.60	16	kg	94.00	15,943.00	
Steel Strut, 3rd & 4th Level	H-350x350x12x19	10.60	16	kg	137.00	23,236.00	
Steel Waling (inner)	C-300x90x10x10.5	17.20	8	kg	43.80	6,027.00	
Steel Waling (innermost)	C-300x90x10x10.5	11.20	8	kg	43.80	3,925.00	
Steel Waling (outer)	C-300x90x10x10.5	17.20	8	kg	43.80	6,027.00	
Steel Waling (outermost)	C-300x90x10x10.5	18.00	8	kg	43.80	6,308.00	
Steel Post	H-350x350x12x19	16.00	4	kg	137.00	8,768.00	
Steel Post	H-300x300x10x15	16.00	8	kg	94.00	12,032.00	
Steel Bracket, 1st&2nd Level	H-300x300x10x15	2.00	32	kg	94.00	6,016.00	
Steel Bracket, 3rd&4th Level	H-350x350x12x19	2.00	32	kg	137.00	8,788.00	
Tie Rods	STR - Ø36	3.50	36	kg	7.99	1,007.00	
Sand/Soil	Borrow Materials			m ³		700.80	Selected Materials

MATERIAL LIST OF TEMPORARY CRANEWAY

A) MAIN CRANEWAY, L = 416 000 mm							
Steel Pile (Bents)	H-300 x 300 x 10 x 15	18.00	265	kg	94.00	448,380.00	
Lower Lateral	L-150 x 90 x 9 x 12	9.30	106	kg	16.40	16,168.00	
Upper Lateral	C-360 x 100 x 13 x 20	9.30	106	kg	67.30	66,345.00	
Bracing	L-100 x 100 x 10	2.90	424	kg	14.90	18,322.00	
Girder	H-588 x 300 x 12 x 20	8.00	260	kg	147.00	305,760.00	
Deck Plate	2000 x 1000 x 208			m ²		3,360.00	
Hand Railing				m		840.00	
Wheel Guard				m		840.00	
B) SUB CRANEWAY							
Steel Pile (Bents)	H-300 x 300 x 10 x 15	18.00	168	kg	94.00	284,256.00	
Lower Lateral	L-150 x 90 x 9 x 12	7.30	84	kg	16.40	10,057.00	
Upper Lateral	C-360 x 100 x 13 x 20	7.30	84	kg	67.30	41,269.00	
Bracing	L-100 x 100 x 10	2.90	84	kg	14.90	3,630.00	
Girder	H-588 x 300 x 12 x 20	13.00	56	kg	147.00	107,016.00	
Deck Plate	2000 x 1000 x 208			m ²		1,092.00	
Hand Railing				m		364.00	
Wheel Guard				m		364.00	

MATERIAL LIST OF ACCESS ROAD

Base Course, t = 200 mm	710.00	m ³	1165.00
Embankment	710.00	m ³	12330.00

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL **YEO** YACHYO ENGINEERING CO., LTD.

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/30/02

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY

PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
PLARIDEL BYPASS - CONTRACT PACKAGE III

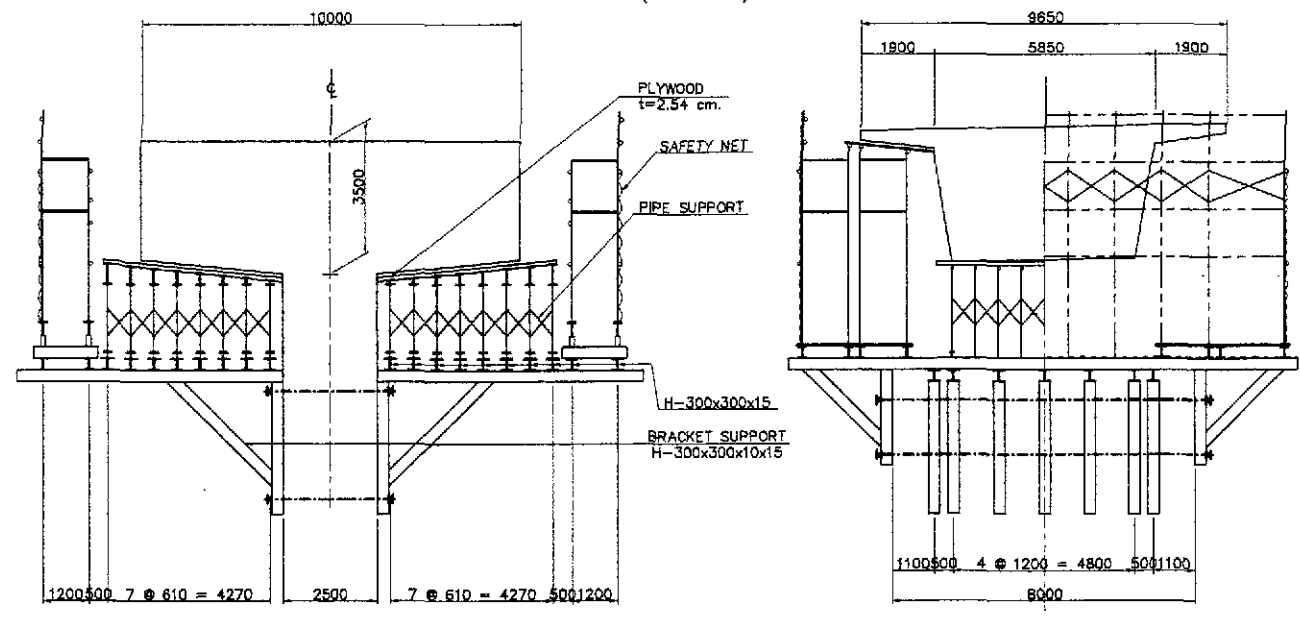
SCALE: AS SHOWN
FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 8 ANGAT RIVER BRIDGE
DETAILS OF TEMPORARY CRANEWAY
BRIDGE & COFFERDAM (2 OF 2)
(ULTIMATE STAGE)

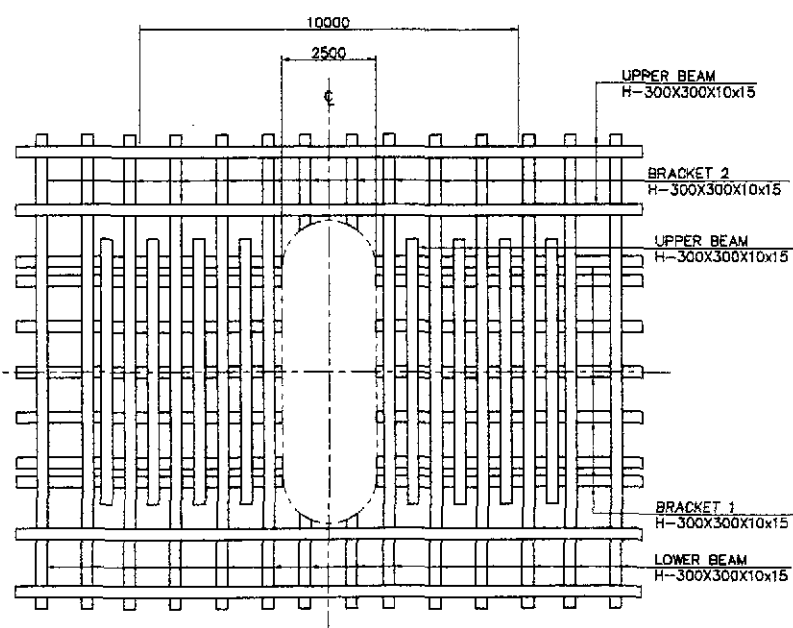
SHEET NO.: B8M-72

APPROVED BY: DANILLO C. TRAJANO (Project Director), ADRIANO M. DOROY (Chief, Bridge Division), GILBERTO S. REYES (Director IV (OIC)), MANUEL M. BONDAN (Undersecretary), SIMON A. DATUMANONG (Secretary)

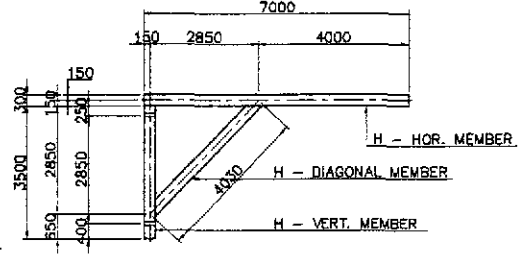
A CAPITAL PIER STAGING BY STEEL BRACKET (TYPE-A)
SCALE 1:50



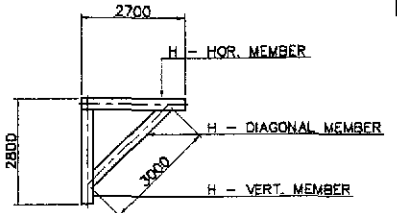
A1 SECTION
SCALE 1:100



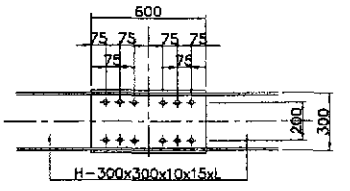
A2 CROSS SECTION
SCALE 1:100



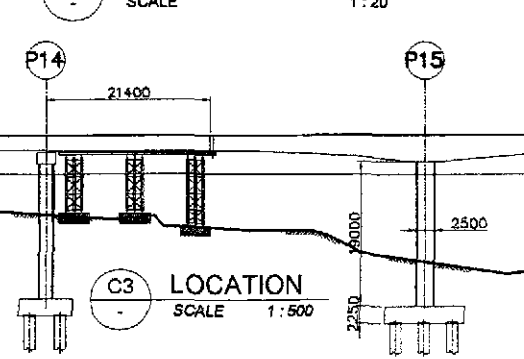
BRACKET - 1



BRACKET - 2

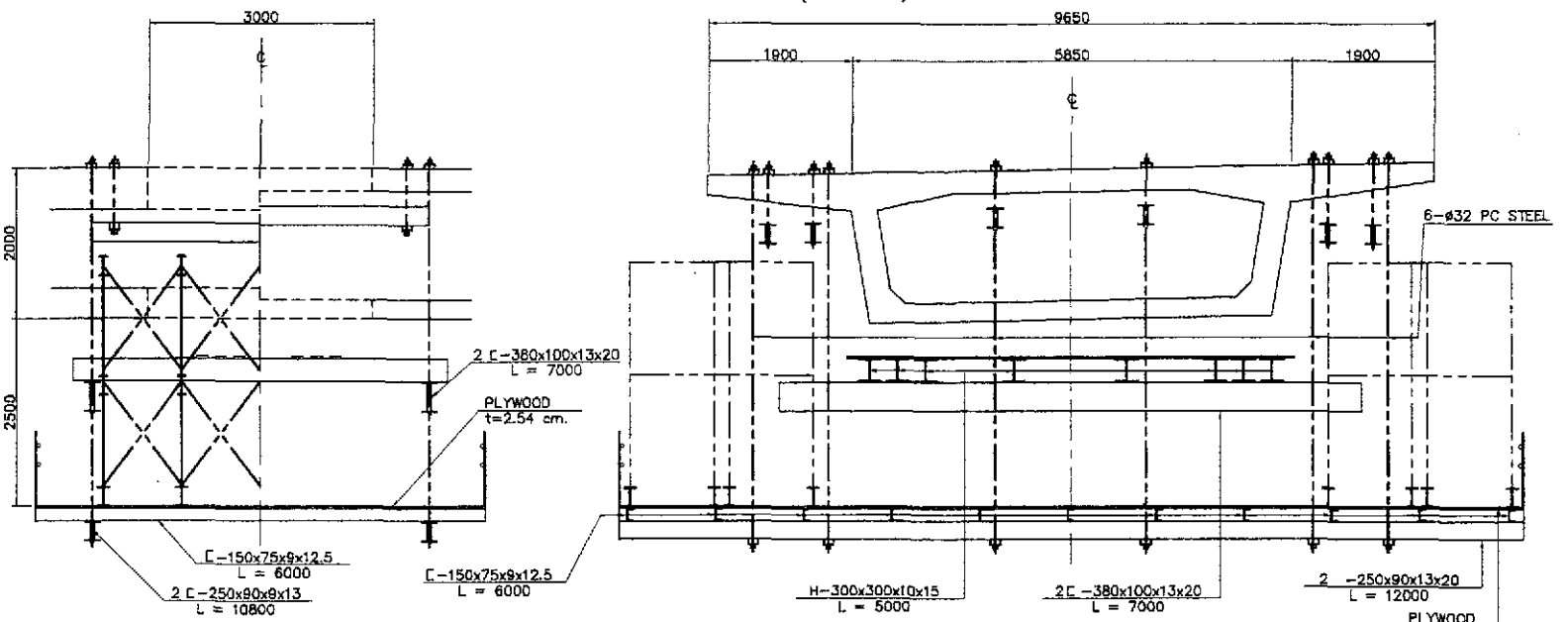


C4 JOINT DETAIL
SCALE 1:20

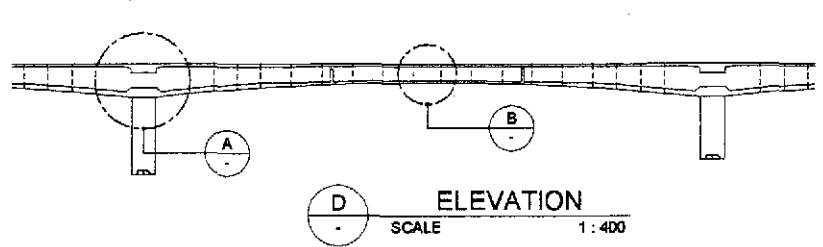


C3 LOCATION
SCALE 1:500

B SUSPENDED SUPPORT AT CENTRAL CLOSING PORTION (TYPE-B)
SCALE 1:50



B1 SECTION
SCALE 1:50



B2 CROSS SECTION
SCALE 1:50

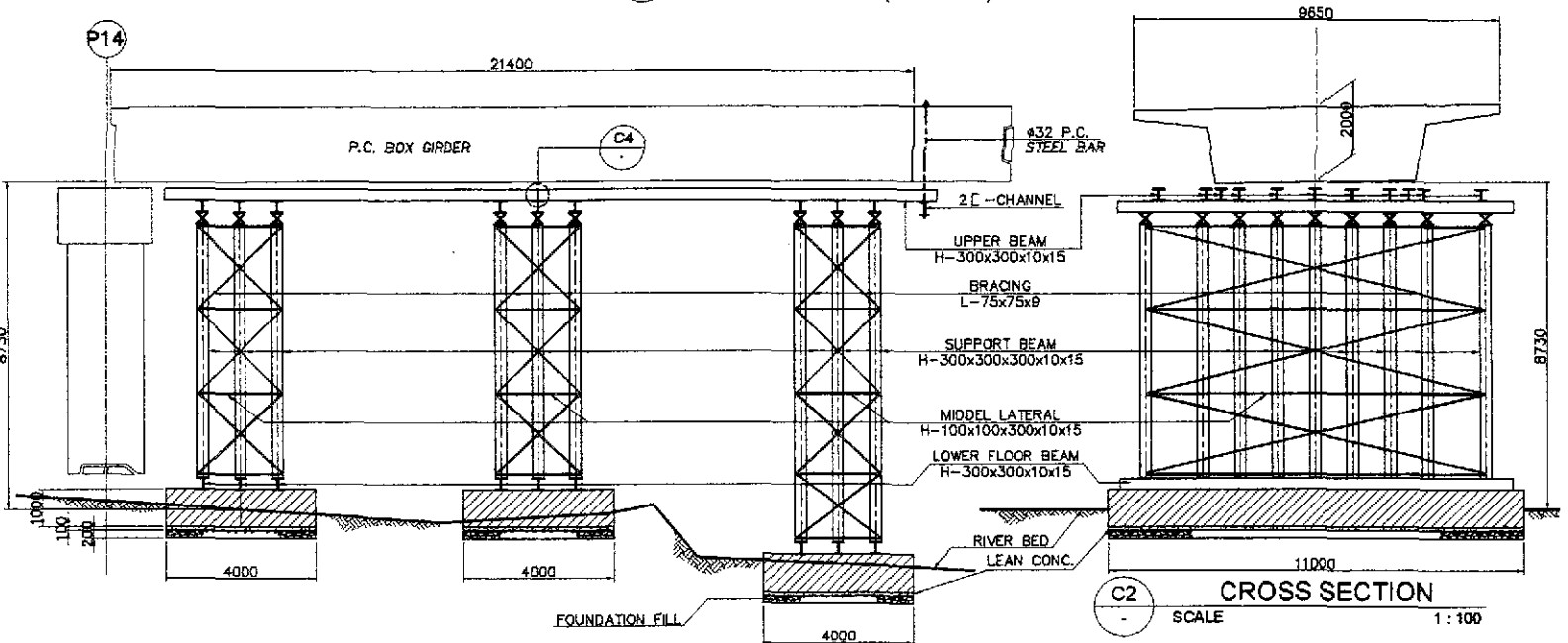


MATERIAL LIST

MATERIAL NAME	SIZE	LENGTH (m)	PCS.	UNIT WT. (Kg/m)	WEIGHT (Kg)	REMARKS
H-BEAM	H-300x300x10x15	5.00	8	94.00	3760.00	
C-BEAM	2C-250x90x9x13	12.00	2	34.60	747.40	
C-BEAM	2C-250x90x9x13	4.50	6	34.60	934.20	
C-BEAM	2C-380x100x13x20	7.00	2	67.30	942.20	
C-BEAM	C-150x75x9x12.5	6.00	12	24.00	1728.00	
				TOTAL WEIGHT =	8118.80 Kgs.	

NOTE :
THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER A MORE DETAILED DRAWINGS AND CALCULATIONS OF FORMWORKS, SHORINGS AND SUPPORTS BEFORE ANY WORK COMMENCE. THIS DRAWING SHALL BE USED ONLY AS REFERENCE.

C SUPPORTED STAGING AT SIDE SPAN (TYPE-C)
SCALE 1:400



C1 ELEVATION AT SIDE SPAN
SCALE 1:100

C2 CROSS SECTION
SCALE 1:100

MATERIAL LIST

MATERIAL NAME	SIZE	LENGTH (m)	PCS.	UNIT WT. (Kg/m)	WEIGHT (Kg)	REMARKS
H-BEAM	H-300x300x10x15	13.00	12	94.00	1466.4	
H-BEAM	H-300x300x10x15	6.50	8	94.00	488.8	
H-BEAM	H-300x300x10x15	8.50	4	94.00	319.6	
H-BEAM	H-300x300x10x15	9.00	4	94.00	338.4	
				SUB-TOTAL =	2613.2	
H-BEAM	H-300x300x10x15	7.00	14	94.00	921.2	TYPE 1
H-BEAM	H-300x300x10x15	4.00	14	94.00	528.4	
H-BEAM	H-300x300x10x15	3.50	14	94.00	460.6	
H-BEAM	H-300x300x10x15	2.70	4	94.00	101.5	TYPE 2
H-BEAM	H-300x300x10x15	3.00	4	94.00	112.8	
H-BEAM	H-300x300x10x15	2.80	4	94.00	105.3	
				SUB-TOTAL =	2227.8	
				TOTAL WEIGHT =	4841.0 Kgs.	

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KATAHIRA & ENGINEERS
INTERNATIONAL

YEO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

OFFICE OF THE SECRETARY

Submitted By: **DANILO C. TRAJANO** Project Director

Reviewed By: **ADRIANO M. DOROY** Chief, Bridges Division

Recommended By: **GILBERTO S. REYES** Director IV (D/C)

Approved By: **MANUEL M. BONDAN** Undersecretary

Approved By: **SIMEON A. DATUMANONG** Secretary

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
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ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)

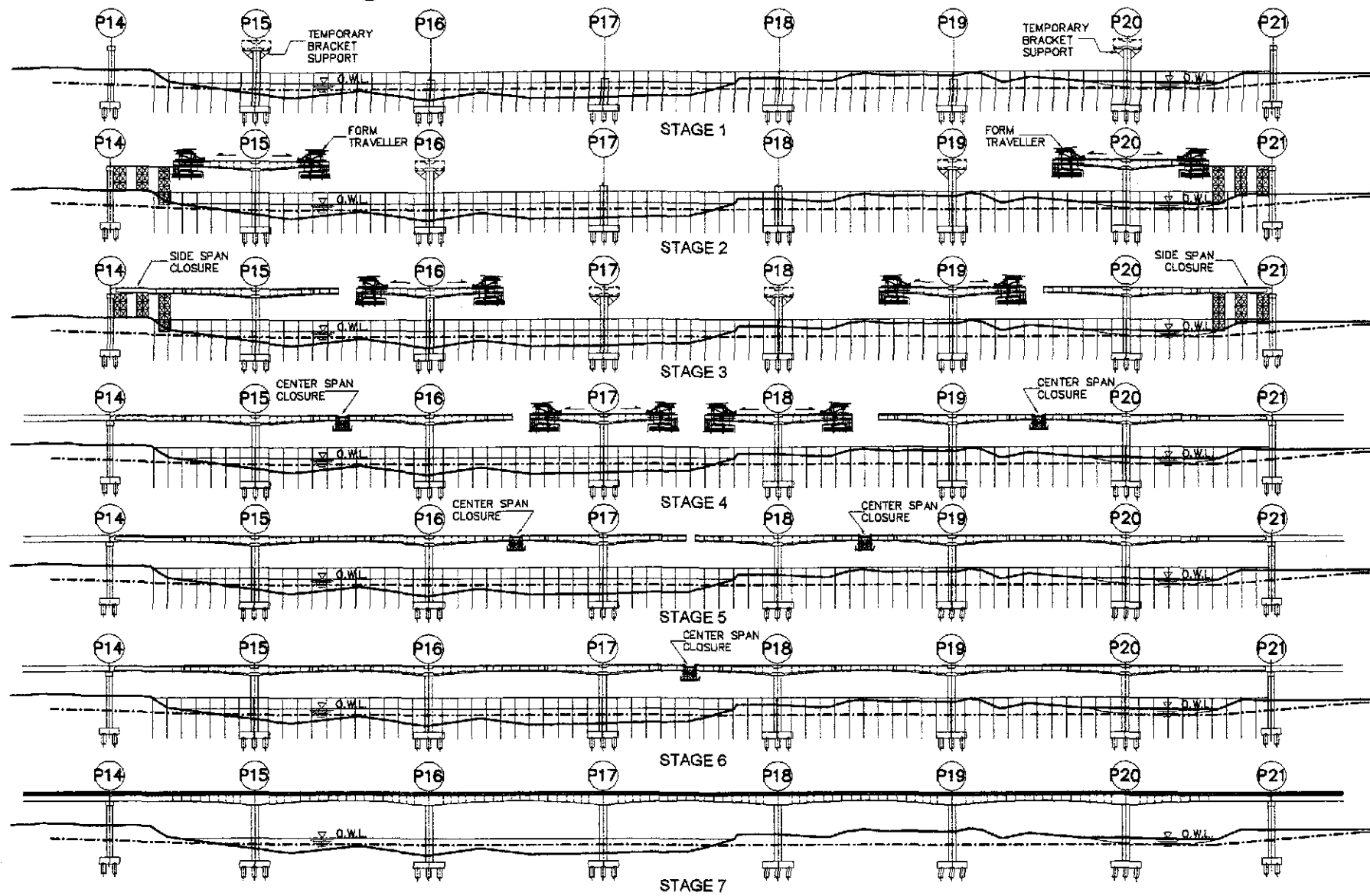
PLARIDEL BYPASS - CONTRACT PACKAGE III

SCALE :
AS SHOWN
FULL SIZE A1

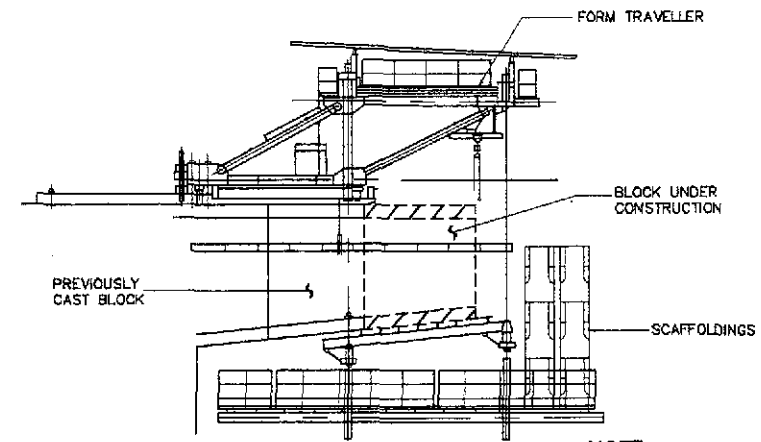
SHEET CONTENTS :
BRIDGE NO. 8 ANGAT RIVER BRIDGE
DETAIL OF TEMPORARY SUPPORT
(SIDE SPAN & CENTER CLOSURE)
(ULTIMATE STAGE)

SHEET NO. :
B8M-73

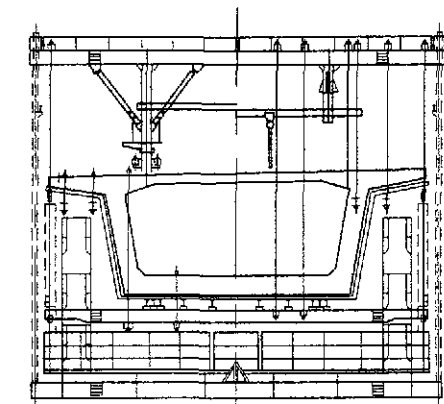
A CONSTRUCTION STAGES BY CANTILEVER ERECTION METHOD
SCALE 1:1000



B TRAVELLER EQUIPMENT (WAGON)
SCALE 1:100



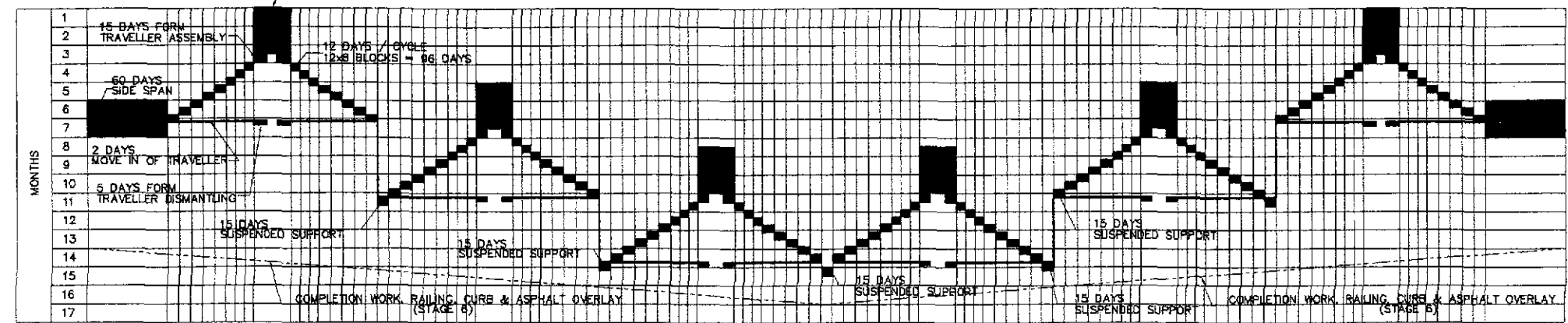
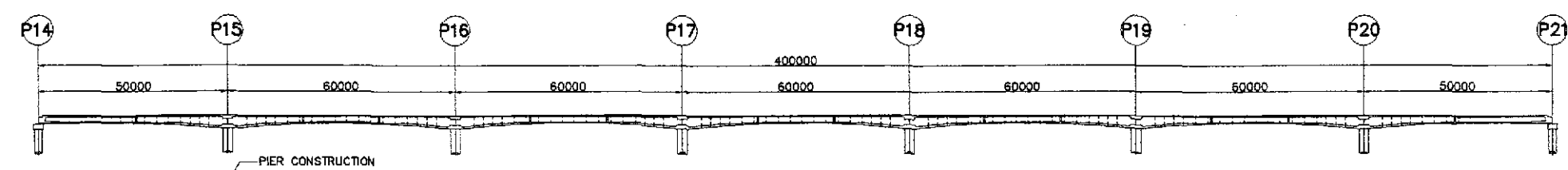
B1 SIDE ELEVATION
SCALE 1:100



B2 CROSS SECTION
SCALE 1:100

NOTE :
THE FORM TRAVELLER WEIGHT ASSUMED IN THE DESIGN IS 600 KN. IF THE ACTUAL WEIGHT OF THE FORM TRAVELLER VARIES FROM THE ASSUMED, THE CONTRACTOR SHOULD PREPARE AND SUBMIT A CHECK OF STRESSES AND CAMBER CALCULATION FOR THE APPROVAL OF THE ENGINEER.

CONSTRUCTION SCHEDULE (SUPERSTRUCTURE)



CONSTRUCTION SEQUENCE:

- STAGE 1 PIER HEAD & INITIAL BLOCKS**
INITIAL BLOCKS ON PIERS P15 & P20 SHALL BE CONSTRUCTED ON TEMPORARY BRACKET SUPPORT INSTALLED AT THE HEAD OF PIERS.
- STAGE 2 P15 & P19 BALANCED CANTILEVER CONSTRUCTION**
AFTER THE COMPLETION OF INITIAL BLOCKS, TRAVELLER EQUIPMENT (WAGON) SHALL BE ASSEMBLED ON THE ESTABLISHED BLOCKS. THEN THE CONSTRUCTION OF EACH BLOCK SHALL COMMENCE FROM THE EXISTING BLOCK TO BOTH SIDES BY CANTILEVER METHOD USING "WAGON" SIMULTANEOUSLY. PREPARATION FOR SIDE SPAN CONSTRUCTION WORKS STARTS. INITIAL BLOCKS FOR P16 & P19 IS CARRIED-OUT.
- STAGE 3 P14 & P21 SIDE SPAN CONSTRUCTION + P16 & P19 BALANCED CANTILEVER CONSTRUCTION**
SIDE SPAN CONSTRUCTION BY STAGING (SUPPORTS/SHORING). P16 & P19 BALANCED CANTILEVERING IS DONE SIMULTANEOUSLY WITH SIDE SPAN CONSTRUCTION. INITIAL BLOCKS FOR P17 & P18 IS ALSO CARRIED-OUT.
- STAGE 4 CENTER SPAN CLOSURE + P17 & P18 BALANCED CANTILEVERING**
ON COMPLETION OF BLOCKS ON PIERS P16 & P19 BY CANTILEVERING FINAL BLOCK LOCATED AT THE CENTER OF THE SPAN P15 & P18 & P19 & P20 SHALL BE CONSTRUCTED BY SUSPENDED FORMWORKS. P17 & P18 BALANCED CANTILEVERING IS DONE SIMULTANEOUSLY.
- STAGE 5 CENTER CLOSURES**
ON COMPLETION OF BLOCKS ON PIERS P17 & P18 THE FINAL BLOCK AT THE CENTERS OF PIER P16 & P17 AND P18 & P19 SHALL BE CONSTRUCTED BY SUSPENDED FORMWORKS AND STRESSED TO COMPLETE THE MAIN BRIDGE.
- STAGE 6 CENTER CLOSURE**
FINAL BLOCK AT CENTER OF P17 & P18 SHALL CONSTRUCTED.
- STAGE 7 FINISHING WORKS**
ALL MISCELLANEOUS WORKS INCLUDING SURFACING IS CARRIED-OUT.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN
OFFICE OF THE SECRETARY

DESIGNED: 9/25/02
CHECKED: 9/27/02
SUBMITTED: 9/30/02

Submitted By: DANILO C. TRAJANO
Reviewed By: ADRIANO M. DORCY
Recommended By: GILBERTO S. REYES
Approved By: MANUEL M. BONDAN
SIMEON A. DATUMANONG

PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
PLARIDEL BYPASS - CONTRACT PACKAGE III

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
**BRIDGE NO. 8 ANGAT RIVER BRIDGE
MAIN BRIDGE
CONSTRUCTION SEQUENCE
(ULTIMATE STAGE)**

SHEET NO. :
B8M-74

SPECIAL NOTES FOR CONSTRUCTION OF MAIN BRIDGE AND RELATED TEMPORARY WORKS

TENTATIVE OVERALL CONSTRUCTION SCHEDULE OF ANGAT RIVER BRIDGE CROSSING

1. AT LEAST ONE (1) MONTH BEFORE COMMENCEMENT OF ANY STRUCTURE WORKS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL COMPLETE DETAILS OF THE CONSTRUCTION METHOD AND SCHEDULE WHICH SHOULD INCLUDE, BUT NOT LIMITED TO THE FOLLOWING :

* DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE BASED ON EQUIPMENT CAPACITY MOBILIZED, CONCRETE TRIAL MIX RESULTS (DEVELOPMENT OF CONCRETE STRENGTH), TYPE OF CRANE AND ALL OTHER RELEVANT INFORMATION. THE CONSTRUCTION SEQUENCE AND CONSTRUCTION SCHEDULE OF SUPERSTRUCTURE SHOWN ABOVE SHALL BE CONSIDERED AS REFERENCE ONLY TO GUIDE THE CONTRACTOR.

* PRESTRESSING METHOD, COMPLETE DETAILS OF THE PROPOSED METHOD, MATERIALS, AND EQUIPMENT TO BE USED IN THE PRESTRESSING OPERATIONS, SUCH DETAILS SHALL INCLUDE THE COMPLETE SPECIFICATIONS AND DETAILS OF THE PRESTRESSING STEEL AND ANCHORING DEVICES, TYPE OF ENCLOSURES AND ALL OTHER DATA RELATED TO PRESTRESSING OPERATION. THE CONTRACTOR SHALL ALSO SUBMIT TO THE CONSULTANT FOR APPROVAL THE PROPOSED PRESTRESSING CONTROL AND ASSURANCE METHOD.

* CAMBER CALCULATION DURING CONSTRUCTION AND AFTER COMPLETION OF THE MAIN BRIDGE BASED ON ACTUAL WEIGHT MOBILIZED, ANTICIPATED SURCHARGE AND RESPECTIVE PHYSICAL CONCRETE PROPERTIES UNDER THE DIFFERENT AGE TO BE CONSIDERED AND OTHER LOADS AFFECTING CAMBER. THE CAMBER SHALL BE CALCULATED AT LEAST BASED ON THE EFFECT OF THE FOLLOWING :

* DEFLECTION DUE TO CONSTRUCTION LIVE LOAD.

* DEFLECTION DUE TO WEIGHT OF FRESH CONCRETE.

* DEFLECTION DUE TO PRESTRESSING FORCE.

* DEFLECTION DUE TO CREEP AND SHRINKAGE OF CONCRETE, AND

* PRESTRESSING CALCULATION SHOWING THE ESTIMATED PRESTRESSING FORCE AND THE DETAILED ARRANGEMENT OF INDIVIDUAL P.C. CABLES AND PRESTRESSING SEQUENCE OF EACH CABLE, ETC. TO BE PREPARED AND SUBMITTED BY THE CONTRACTOR BASED ON THE CALCULATIONS MADE IN THE DETAILED DESIGN (WHICH WILL BE PROVIDED TO THE CONTRACTOR), ANTICIPATED ELASTICITY MODULUS OF CONCRETE RESULTING FROM THE CONCRETE TRIAL MIX AND OTHER RELATED DATA NECESSARY IN THE PRESTRESSING CALCULATION.

* STRESSES OF MEMBERS AT DIFFERENT STAGES OF CONSTRUCTION SHOULD BE CHECKED AND VERIFIED BY THE CONTRACTOR ESPECIALLY DURING STRESSING OPERATIONS.

2. CRANEWAY CONSISTING OF TEMPORARY BRIDGE AND APPROACH ROAD SHOWN IN DWG. NO. BM-71

* PRIOR TO COMMENCEMENT OF CRANEWAY CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION DRAWING OF THE CRANEWAY WITH STRUCTURAL ANALYSIS BASED ON THE LATEST TOPOGRAPHIC SURVEY (5m/500) TAKEN IN PRE-CONSTRUCTION SURVEY STAGE AND IN ACCORDANCE WITH DWG. NO. GS2A-182 (WHICH SHALL BE CONSIDERED AS REFERENCE ONLY.) APPLICABLE DESIGN LIVE LOAD FOR CRANEWAY DESIGN SHALL BE MS-16 IN AASHTO OR GROSS WEIGHT OF 80 TON TRAILER, WHICHEVER PRODUCES THE SEVERE EFFECT FOR A MEMBER TO BE DESIGNED.

* IT WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND REPAIR THE CRANEWAY AT HIS OWN EXPENSE DURING THE ENTIRE CONSTRUCTION PERIOD.

* DAMAGES INFLECTED ON THE CRANEWAY AS A RESULT OF TYPHOON AND FLOODS SHALL NOT BE A BASIS FOR CLAIM OF ANY MANNER AGAINST DPWH AND IT IS THE OBLIGATION OF THE CONTRACTOR TO RESTORE AND REPAIR THE DAMAGES AT HIS EXPENSE.

* AFTER COMPLETION OF THE MAIN BRIDGE, THE CONTRACTOR IS RESPONSIBLE (AT HIS OWN EXPENSE) FOR THE REMOVAL OF THE CRANEWAY AND THE RESTORATION OF THE RIVER BANK TO ITS ORIGINAL CONDITION.

3. TEMPORARY SUPPORTS / SHORINGS FOR PIER P14 AND P21 IN DWG. NO. BM-73 AND SUSPENDED FORMWORKS FOR CENTER SPAN CLOSURE.

* THE CONTRACTOR SHALL SUBMIT FOR THE ENGINEER'S APPROVAL WORKING DRAWINGS OF THE TEMPORARY SUPPORTS, SHORINGS & SUSPENDED FORMWORKS FOR CENTER CLOSURE INCLUDING DESIGN CALCULATIONS AS REFERRED TO DWG. NO. BM-73

* DAMAGES INFLECTED ON THE TEMPORARY SUPPORTS AS THE RESULT OF TYPHOONS AND FLOODS SHALL NOT BE A BASIS FOR CLAIM OF ANY MANNER AGAINST DPWH AND IT IS OBLIGATION OF THE CONTRACTORS TO RESTORE AND REPAIR THE DAMAGES AT HIS EXPENSE.

4. FORM TRAVELLER (WAGON)

* THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER, THE WORKING DRAWINGS FOR FORM TRAVELLER INCLUDING DESIGN CALCULATIONS, CAPACITY AND WEIGHT OF THE TRAVELLER.

* IF THE FORM TRAVELLER'S WEIGHT DIFFER FROM THE ASSUMED WEIGHT AS USED IN THE DETAILED DESIGN, THE CONTRACTOR SHALL PROVIDE A CHECK OF STRESSES FOR ALL CONSTRUCTION STAGE & AFTER COMPLETION OF THE SUPERSTRUCTURE (INCLUDING LONG TERM EFFECTS). CAMBER SHALL ALSO BE INVESTIGATED.

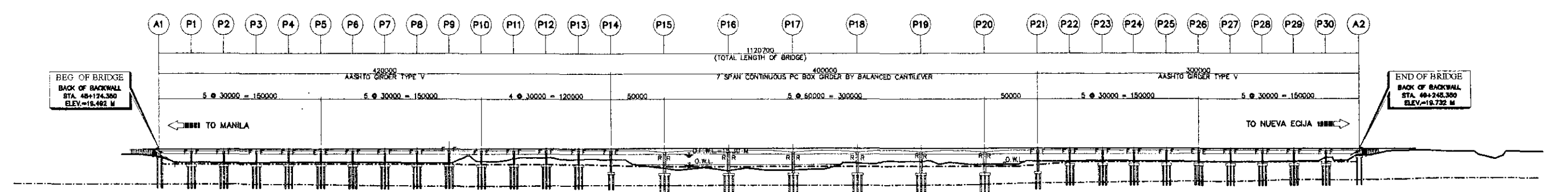
* ASSUMED WEIGHT OF FORM TRAVELLER = 600 KN

5. TENTATIVE CONSTRUCTION SCHEDULE SHOWN

* THE TENTATIVE CONSTRUCTION SCHEDULE SHOWN SHALL BE CONSIDERED AS REFERENCE ONLY TO GUIDE THE CONTRACTOR IN THE PREPARATION OF CONSTRUCTION SCHEDULE BY PERT-CPM.

* ACTUAL COMMENCEMENT DATE OF THE PROJECT, WHICH WILL BE DIFFERENT FROM THAT INDICATED IN THE TENTATIVE CONSTRUCTION SCHEDULE SHALL NOT BE CONSIDERED AS BASIS FOR CLAIM OF TIME EXTENSION.

ITEM NO.	WORK ITEM	QTY.	UNIT	MONTH - YEAR 1												MONTH - YEAR 2												MONTH - YEAR 3					
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1.0	MOBILIZATION AND PREPARATORY WORKS			[Gantt bars]																													
2.0	ERECTION OF CONCRETE BATCHING PLANT & TEMPORARY FACILITIES			[Gantt bars]																													
3.0	CONSTRUCTION OF ACCESS ROADS	5680	SM	[Gantt bars]																													
4.0	CONSTRUCTION OF APPROACH SPANS			[Gantt bars]																													
4.1	MANILA SIDE (5 @ 30m + 5 @ 30m + 4 @ 30m)			[Gantt bars]																													
4.1.1	ABUTMENT 1			[Gantt bars]																													
4.1.2	BORED PILE CONSTRUCTION FOR PIERS	1560	LM	[Gantt bars]																													
4.1.3	CONSTRUCTION OF PILE CAP	13	Pcs.	[Gantt bars]																													
4.1.4	CONSTRUCTION OF COLUMNS	13	Pcs.	[Gantt bars]																													
4.1.5	CONSTRUCTION OF COPING	13	Pcs.	[Gantt bars]																													
4.1.6	FABRICATION OF PC AASHTO GIRDERS	56	Pcs.	[Gantt bars]																													
4.1.7	LAUNCHING OF PC AASHTO GIRDERS	56	Pcs.	[Gantt bars]																													
4.1.8	DECK SLAB WORKS	4053	SM	[Gantt bars]																													
4.2	NUEVA ECUA SIDE (5 @ 30m + 5 @ 30m)			[Gantt bars]																													
4.2.1	ABUTMENT 2			[Gantt bars]																													
4.2.2	BORED PILE CONSTRUCTION FOR PIERS	972	LM	[Gantt bars]																													
4.2.3	CONSTRUCTION OF PILE CAP	9	Pcs.	[Gantt bars]																													
4.2.4	CONSTRUCTION OF COLUMNS	9	Pcs.	[Gantt bars]																													
4.2.5	CONSTRUCTION OF COPING	9	Pcs.	[Gantt bars]																													
4.2.6	FABRICATION OF PC AASHTO GIRDERS	40	Pcs.	[Gantt bars]																													
4.2.7	LAUNCHING OF PC AASHTO GIRDERS	40	Pcs.	[Gantt bars]																													
4.2.8	DECK SLAB WORKS	2895	SM	[Gantt bars]																													
5.0	MAIN BRIDGE			[Gantt bars]																													
5.1	INSTALLATION CRANEWAY	420	LM	[Gantt bars]																													
5.2	TEMPORARY COFFERDAMS	8	SETS	[Gantt bars]																													
5.3	BORED PILE CONSTRUCTION	1188	LM	[Gantt bars]																													
5.4	PILE CAP CONSTRUCTION	8	Pcs.	[Gantt bars]																													
5.5	PIER/COLUMN CONSTRUCTION	8	Pcs.	[Gantt bars]																													
5.6	PIER HEAD CONSTRUCTION	6	Pcs.	[Gantt bars]																													
5.7	CONSTRUCTION OF SIDE COPING	2	Pcs.	[Gantt bars]																													
5.8	CONSTRUCTION OF SUPERSTRUCTURE (SIDE SPAN)	43	LM	[Gantt bars]																													
5.9	CONSTRUCTION OF SUPERSTRUCTURE (BALANCED CANTILEVER CONSTRUCTION)	357	LM	[Gantt bars]																													
6.0	RAILING WORKS			[Gantt bars]																													
6.1	RAILING INSTALLATION - MANILA SIDE APPROACH SPAN	840	LM	[Gantt bars]																													
6.2	RAILING INSTALLATION - NUEVA ECUA APPROACH SPAN	600	LM	[Gantt bars]																													
6.3	RAILING INSTALLATION - MAIN BRIDGE SECTION	800	LM	[Gantt bars]																													
7.0	BRIDGE SURFACE WORKS			[Gantt bars]																													
7.1	ASPHALT OVERLAY - MANILA SIDE APPROACH SPAN	3465	SM	[Gantt bars]																													
7.2	ASPHALT OVERLAY - NUEVA ECUA APPROACH SPAN	2475	SM	[Gantt bars]																													
7.3	ASPHALT OVERLAY - MAIN BRIDGE SECTION	3300	SM	[Gantt bars]																													
8.0	RIVER AND PIER PROTECTION WORKS	1	lot	[Gantt bars]																													
9.0	MISCELLANEOUS WORKS	1	lot	[Gantt bars]																													
10.0	CLEANING AND DEMOBILIZATION	1	lot	[Gantt bars]																													



NOTE :
 THIS CONSTRUCTION SCHEDULE IS USED FOR REFERENCE ONLY.
 THE CONTRACTOR SHOULD PREPARE A MORE DETAILED CONSTRUCTION SCHEDULE CONSIDERING PLANT CAPACITIES, EQUIPMENT CAPACITY/ AVAILABILITY, LABOR CONDITIONS, CLIMATE, WORKING DAYS, ETC. FOR THE APPROVAL OF THE ENGINEER.

	DESIGNED	9/25/02	[Signature]	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/27/02	[Signature]		Submitted By:	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 8 ANGAT RIVER BRIDGE TENTATIVE CONSTRUCTION SCHED. AND GEN. NOTES FOR TEMPORARY WORKS (ULTIMATE STAGE)	B8M-75
	SUBMITTED	9/30/02	[Signature]		Reviewed By:	PLARIDEL BYPASS - CONTRACT PACKAGE III	FULL SIZE A1		